The Builder.

VOL. XXII.—No. 1135.

*The Steam-boat Piers, and the Landing-stairs, in the Thames Embankment.**

WE have already referred to the condition of the execution of the work of the steam-boat piers at Waterloo Bridge,—the foundations being carried down below the footings of the pier of the bridge,—which involves the necessity of securing the foundations of the bridge-pier. The manner in which the important measure is proposed to be effected, is now to be described. The difference of the levels is not very clearly shown; but it may be as much as 6 ft. or 7 ft. Ground about the pier of the bridge, or taking in a breadth from the pier, of 19 ft. or 20 ft. on the river-side, that of the second arch, is to be enclosed by a "permanent dam" of cast-iron piles and plates, attached to the present footings by iron tie-rods bedded in concrete, upon which will be an inclined apron of granite blocks, everywhere dowelled together. The system resembles in the idea, that which the late Mr. Walker applied to the piers of old Westminster Bridge at some time near a quarter of a century ago; and it also resembles Mr. Page's method of foundations in the present Westminster Bridge. In the old Westminster Bridge, where the new piling was of timber, the piers failed from defects of foundation in places within the circuit of footing, as well as by the scour previously to the works of maintenance. Mr. Bazalgette's proposed arrangement is one of iron-cylinder piles, with grooves, and flanged plates sliding into them, each pile being 12 in. in internal diameter, and of 1-in. metal; but the drawings show screw-piles, which the engineer of Westminster Bridge eventually rejected, as much we believe from questions of the difficulty of driving them, as from any of economy. Mr. Bazalgette proposes to screw the piles down to a level of 32 ft. below Ordnance datum,—or 22 ft. below the bed of the river, as it appears, or 28 ft. below low-water level,—and to drive the plates down to 10 ft. below the bed. The piles generally would be 5 ft. apart, centre to centre. The top line of the piles and plates, on the river-side, seems intended to be at the level of the river-bed, 6 ft. below low-water level (or more exactly stating, ¾ in. lower than the 6 ft.): but, on the land-side, the plates and piles will be longer; since, though each will go down to the same level as on the river-side of the pier, the tops will be 5 ft. 3 in. higher. Each pile will be fitted with a cap to receive the tie-rod. There will be in all sixty of the grooved cylinder-piles in the circuit, with the flanged plates, and six more piles with plates to carry masses of rusticated masonry which are to be built in extension, up-stream and down, of the lower portion of the present piers of the bridge; and there are six different patterns of the iron caps to the piles. The grooves in the piles will be 2 in. deep, and 1¼ in. wide, and of the requisite length; and the plates will be of 1 in. metal, with three ribs or flanges on the back, each 3 in. deep, and with two on the face, of 2 in. depth; and they will also be cast with a skew-back and flange at the top, to receive the granite apron. The tie-rods, each 1¼ in. in diameter, will pass through the pile and cap, and be screwed at the further extremity to the masonry of the footings of the bridge, by wrought-iron lewises, 15 in. in depth, and tightened up by a screwed nut in front of the pile-cap. The space inclosed by the "dam" of iron piles and plates, will be excavated to the level of the lowest course of footings of the bridge-pier, and to 1 ft. 9 in. below the top of the piles; and the concrete will then be filled in as the bed for the apron. A brick culvert, 6 ft. 1½ in. wide and 16 ft. high, will be constructed at the back of the bridge-pier. It will form part of the channel before referred to as provided for the flow of the tide. These important works form part of Contract No. 1, that of Mr. Furness, for which Mr. Lovick is the resident engineer.

It is not expected that the pier of the Charing Cross Bridge will require any protection, the foundations being understood to have been carried down to sufficient depth. The culvert at the back of one recess, will not be connected with the other by any culvert at the back of the bridge-pier.

The Temple Steam-boat Pier and Landing-stairs (in Contract No. 2, Mr. Ritson's, for which Mr. E. Cooper is the resident engineer), to take the place of the present Essex-street Pier, will comprise a length of 470 ft., and include a recess of 250 ft., for the "dumby" or pontoon, and an arrangement for the iron bridges, similar in plan, but different in some of the architectural details, to the arrangement of each landing-place at Charing Cross Bridge and Waterloo Bridge. The projections forming the ends of the recess, and each 28 ft. on the face, however, will be floored at the top, to form large platforms, round which the balustrades will be continued; and from each of these paved areas there will be the descent on one side, by the inclined bridge, to the pontoon, and one on the other by stairs, 17 ft. 8 in. in width, to the water. At the foot of these latter steps, there will be a gridiron formed with 3-in. elm planks, and a granite apron extending 28 ft. from the foot of the steps. These landing-stairs are, each, in two flights of steps, without turning. In the front elevation, the raking-line of the parapet appears only at the commencement of the descent, the middle landing and some of the steps being masked by a group of projections forming the base to a large pedestal. A corresponding pedestal is placed on the further side of the stairs, or on the line of the embankment-wall. The latter pedestal is flanked, like the other, but on the reverse side in the elevation, by a slight projection from the embankment-wall, 28 ft. in the face, which is crowned by balustrading, the same as that of the other projection, or large platform at the top of the steps. Mooring-rings of the lion's head pattern, and another, decorate the centre pedestals of the balustrading, and the projections of the base. As in the Charing Cross Bridge and Waterloo Bridge steam-boat piers, there is a central recess (here of 25 feet width) from the back of the main recess; and from the floor, in this smaller recess, which is part of the deck of the pontoon, the inclined iron bridges will ascend. The angles and back of this recess are terminated by pedestals, forming a group; but the back-wall is surmounted by a more prominent central feature than in the other cases. A rusticated arch, with console-head, in a structure of masonry, breaks the line of the balustrade, and carries a plinth and central pedestal for tripartite groups of sculpture.

We have heretofore ventured to say that some of the architectural features of the piers and stairs of the Thames Embankment, might be the better for revision. We have, ourselves, got almost to dread novelty, and the pseudo-novelty which is mere style; but there cannot be good art in new building, without novelty. To some extent of it, it is imperatively demanded; very little of the element is required, provided what there is else be good; and beyond the little, as every day shows, the danger of going wrong increases with the novelty, more than the ability of architects to meet the difficulty. But there is no reason why the more prominent features of the Thames Embankment should be little more than so many cubes of stone, why pedestals should never be varied by curved lines in plan and even in elevation, or why such a central feature as that which we have spoken of as belonging to the Temple Pier, should not be characterized by more of new thought. If we dispense with novelty, however, the feature referred to may be described as meritorious,—in the details.

We may mention, with a view to help to the understanding of what may be now seen in progress, that the steam-boat landing-stage and the stairs just described, will project into the river upwards of 31 ft. from the general line of the embankment. Between the screen-walls forming the back of the large recess, and the line of the embankment-wall, or in the position on plan where the inclined bridges will be, two parallel culverts of rectangular form in section, will be placed; and these will be continued each way, to open into the river at the apron which we have described as at the foot of the landing-stairs. Space under these stairs, and under the platform or top landing, will be apportioned to a reservoir for storing water for flushing. Under each of the two reservoirs there will be three other culverts, of rectangular section, two being 4 ft., and one 4 ft. by 3 ft. wide. The smaller one will be carried in a straight line from the end of the landing-stairs to the recess for the pontoon. From the two culverts, at the base of the wall forming the back of the large recess, there will be openings 3 ft. by 3 ft., for flushing the space of the recess. Also for the same object there will be, at the bottom of each of the reservoirs, cess-pits with outlets into the pontoon-recess, the outlets being fitted with sluice-valves. In some parts of the substructure, a section shows the five culverts side by side, occupying a total breadth of 27 ft. or 28 ft., the divisions being 2 ft. or less. Considering the scour, is this construction quite sufficient? It will be recollected that the storm-water outfall from the Essex-street sewer, the arrangement of which was spoken of in a former article, is connected with the substructure of this steamboat-pier: the outlet is placed in the middle of the length, or in the recess; and ample provision for flushing has been rightly considered to be required.

We have thus described the provision made, in the two contracts, for the steam-boat traffic. There are two places at which there are to be landing-stairs which we have not described. For the "York Stairs Landing," it is intended to remove York Gate, at present at the end of Buckingham-street, and to place it opposite to the houses of Whitehall Gardens, projecting from the face of the embankment. Mr. Bazalgette deserves praise for his intention to preserve what he can, of a work which is regarded with so much interest by architects. We are frequently suggesting that, when good work exists, but has to be removed, the work might be set up somewhere, as in one of the parks, with more advantage decoratively than is derived from the consignment of the fragments to the

* See p. 786, *ante*.

yard of the dealer in old materials, and with some retention of the interest which the work may be supposed to afford as a link of the chain of art-history; and we do not cease to regret some precious fragments and some opportunities that have been lost. But when the object is to preserve, as little alteration as possible should be made. A considerable alteration will be made in York Gate, as well by omission of something, as by addition. We regret especially, that the original arrangement of the steps, base, and foreground of the work, which may be yet identified in every detail, or with the help of published drawings, should be departed from,—deeming the breadth of landing, and steps in front, of much value. We dwell upon the matter, because it is much the fashion to omit or modify features which were of the entirety of a design, and yet to expect a result the same as without the alteration. It must be admitted, however, that Mr. Bazalgette's task was a difficult one without encroaching upon the footway of the embankment, or projecting farther into the stream. The old site was always about the same level above the water or foreshore,—albeit the latter foreground has of late been one of disgusting mud: at the new site, two separate designs, as it were, have to be considered, one for the state of high-water, and the other for that of low-tide when a substructure of the work must appear. We would rather have had the gate what it is, or was, found a place for it on the land-side of the embankment-road, as the entrance to any gardens that may be proposed, and designed new landing-stairs for the situation between Westminster and Charing Cross Bridges. The works now contemplated, comprise a space in the length of the embankment, of 108 ft., whereof the old work of the gate stands for 28 ft., not including the three-quarter columns at its ends. The 108 ft. space is the length of a projection from the general line of the embankment-wall, of which the two lengths of 40 ft. each, at the ends, are to be balustraded, two end-pedestals carrying lions *couchant*. The projection affords a recess from the footway, of 5 ft. 6 in., which will be furnished with stone seats. Recesses similarly furnished might have been provided elsewhere in the line of embankment, with advantage. Rests for goods, should not be forgotten now, and should be made not unsightly. The basement of the projection mentioned, which will be all concealed at time of high-water, is designed in the manner of "vermiculated" rusticated work. The gate projects 15 ft. 6 in. further; and the landing and its substructure other 10 ft. From this landing, stairs, 10 ft. in width, will descend right and left in three flights, without balustrades. The face of the substructure of the landing and steps, looking from the river, will have the same character of rusticated masonry as the projection already described; but carrying the landing, there will be a bold arch, with carved console, forming a recess beneath. The steps, in the side flights, will be major and filling-in steps, an arrangement conducive to effect rather than to safety in descending. The two spaces, on plan, left between the steps and the projection from the embankment-wall, will be each paved, on concrete, with granite,—laid to an incline; and there will be four culverts, 12 in. in height, for the passage of the tidal-waters from one recess to the other through the base of the structure, and to each recess, three smaller and more flattened openings, which will be connected with a reservoir of six compartments, to be stored with water for flushing, and also connected with the requisite sluices and gearing. The material of the substructure, and steps, generally, is to be granite; and the steps will be dowelled together with slate-dowels. The balustrade is to be of the same material; and a shell will be carved on the dado of each of the lamp-pedestals, in lieu of the lion's head generally used in the embankment.

The landing-stairs between Charing Cross and Waterloo Bridges, will be placed about opposite the Fox under the Hill, or Salisbury-street. The work will comprise a length of "special construction," of 190 ft., and will include a flight of six steps, 50 ft. in width, leading down at right angles from the line of the embankment, to a landing of 50 ft. by 18 ft. 9 in., whence there will be two return flights, or parallel with the embankment, each occupying 40 ft., down to the water. The remaining 60 ft. of the length of special construction, will be made up by the ends of a slight projection from the embankment. As in most of the works described above, the excavation for concrete is to be carried down to 20 ft. below the Ordnance Datum,—that is, it may be, 8 ft. to 12 ft. below the bed of the river. The concrete in the work we are now describing, is specified to be 8 ft. 4½ in. in depth. The steps do not appear in the front elevation: there is a parapet-facing of masonry next the river, which is finished by three pedestals for lamps. Other pedestals on the embankment-wall, in the drawing are shown bearing lamps. The mermaid forms in these last should be exchanged for forms more architectonic, and wherein figure-sculpture, if used, should be *appliqué*, not substituted for the structural. Large block-pedestals are also shown, flanking the central stairs and bearing colossal sedent figures. Each of the lower flights of steps is flanked by two lions couchant. The substructure of the steps and landing, including cross-walls and arching, is designed with culverts, storage-space, and sluices, to serve flushing purposes, as before described. There will be three spreading outlets, at the foot of each of the lower flights, in the riser of the bottom step, and each 3 ft. in width by 9 in. in height. In connexion with these, the opening of an end-compartment of the reservoir-space under the steps, will be fitted with a sluice-valve. Further, there will be a culvert from end to end, next to the embankment-wall, into which access will be provided from the several chambers of the reservoir, by openings; and this culvert also will be fitted with sluice-valves, one at each end. The area around this landing-place, in the river, for 12 ft. from each end of the stairs, and 6 ft. in front of the embankment-wall, is to be paved with granite.

We have now completed our particulars of the whole work as designed, of the two contracts for the Thames Embankment, which are in hand, and extend from Westminster Bridge to Whitefriars; and we have given, in our first articles, some account of the gestation of the work generally. We stop short, having not described what is proposed for the connexion between the present limit of the work, east, and Blackfriars Bridge, and what is in process of design for the Surrey side of the river. The drawings for these portions of the great work of embanking both sides of the Thames, are yet incomplete. We have, however, given particulars that will enable many of our readers to understand the works in progress, in which they cannot but take much interest,—works that without some preliminary information would be likely to seem hopelessly complicated, as they are certainly characterized by extraordinary elaboration in the details.

THE LATE MR. C. H. SMITH, ARCHITECTURAL SCULPTOR.

Few members of the Institute of Architects, the Society of Arts, and other cognate associations in London, will hear without regret of the death of Mr. Charles Harriott Smith, who was always ready to say something on the subject under discussion; and, moreover, always had something to say that might be usefully listened to.

Mr. Smith was born on the 1st of February, 1792, and died October 27th, 1864, of cerebral irritation, of long standing and terminating in paralysis. His scholastic education was very limited, for he left a very common school at twelve years of age, to go to work. He occasionally spoke, in after-life, of being indebted to Mr. Bonomi (father of the present curator of the Soane Museum) for drawing his attention to higher branches of art than those he was pursuing at home with his father as stone-mason. Valuable is a word in season. When he entered the Royal Academy, in 1814, he became acquainted with many students who afterwards proved warm and useful friends; one in particular, Professor Donaldson, who will perhaps recollect what he did for him in furthering his education about that time. If the good-hearted Professor should forget, he may be assured that the subject of our notice never did.

Mr. Smith passed through all the schools at the Royal Academy (we do not know of any other student who ever did so) by drawings of the human figure. In 1817 he obtained their highest rewards for architecture, and consequently enjoyed the privilege of free admission as a student at all times during his life. Starting thus, he might have aspired to practise one of the highest branches of art. Circumstances, however, led him to producing rather than creating. He executed the Corinthian capitals and other architectural adornments at University College, the National Gallery, the Royal Exchange, and elsewhere, and was appointed, without application, one of the four commissioners to travel through England and Scotland in search of a fit and proper stone for the New Houses of Parliament. With the conductor of this journal, he afterwards visited the stone quarries of Caen. If the advice that was then jointly given to the quarry-owners had been followed, their stone would have been held in better repute in England than it now is for external work. Later, he was a member of the Government Committee appointed to inquire and report as to the condition of the stone of the Houses of Parliament.

Mr. Smith became a life member of the Society of Arts in 1813, and for many years took a lively interest in its proceedings. This was the only society to which he ever subscribed, feeling justly proud that to all other institutions he was admitted by invitation. His writings and lectures were numerous and varied in subject. Many papers with his name to them will be found in our own pages. In his latter days he called himself a "strange mongrel of art, science, literature, and business." He was an occasional competitor for architectural works. For the Nelson column at Charing-cross he made a large model of his design. The last design he submitted was for the proposed museum in Kensington, of which some notice was given by us at the time. Looking through the old catalogues of the Academy we find he exhibited in 1809 a design for a villa; in 1810, a view of Chelsea Hospital, from actual measurement; 1813, a design for a church; 1815, a design for an edifice to commemorate the victories of Wellington in the Peninsula; 1817, a design for Pantheon of the Heathen Deities; 1818, a bust of his father (in wax); 1821, a design for the interior of a Pagan temple; 1822, a bust of a lady; and in 1824, a bust of the Hon. and Rev. E. J. Turnour.

In 1855 he was elected honorary member of the Institute of Architects,—a distinction of which he was very proud. Mr. Smith had made himself, as many will remember, a thorough master of perspective, and his knowledge of lithology is well known. As we have already said, he possessed great general information, and was always ready to impart it to others who sought it. As one of his old workmen said recently,—"He never grasped for money, but he did for knowledge, which he held fast, but nevertheless gave it away abundantly."

We record his death with regret, and hold his memory in esteem.

THE LATE MR. ALFRED TAYLOR, C.E.

We regret to have to record the death, from diphtheria, on the 23rd ult., of Mr. Alfred Taylor, C.E., of Crosby, near Liverpool. Mr. Taylor, though but in his thirty-first year, was getting well known as a sanitary engineer. Commencing as a pupil with Mr. Hibbert, C.E., and afterwards with Mr. Henry, when engaged on the Wolverhampton water supply and drainage works, after executing several large surveys, he was engaged by the borough engineer of Liverpool, Mr. Newlands, at whose office and works he was not slow to avail himself of the first-rate opportunities which presented themselves for improving his practical knowledge. Thence he became the engineer of Merthyr Tydfil, where he carried out a good deal of drainage and other work, and removing to Waterloo, near Liverpool, completed the system of sewerage there which is now in operation. A few years ago Mr. Taylor commenced private practice, and carried out some difficult and successful land drainage works for Mr. Weld Blundell, at Birkdale, near Southport. He also made surveys of both Birkdale and Crosby, for their respective local boards, and laid out a system of inland drainage and deodorising tanks for the latter, which met the approval and warm support of the Government inspector, Mr. Rawlinson. In addition to these, he executed many private sanitary works, and as architect produced some meritorious buildings. Mr. Taylor's character was distinguished by energy and thoroughness, sparing no pains, when about to undertake any new work, to inform himself of the details of the most successful works of the kind that had up to that time been carried out. In him we have lost a promising engineer, who, doubtless, by his practical talents and excellent judgment, would, had he lived, have raised himself to a foremost place in the profession.

JOHN LEECH.

On Saturday last died—not unexpectedly by those who had the honour and pleasure of his acquaintance—John Leech, the "back-bone" for many years of *Punch* "proper,"—the main-stay of "Punch's Almanac,"—and the clever artist of many a clever coloured frontispiece to "Mr. Punch's Pocket Book."

Mr. Leech was born in London, in the year 1817, and educated at the Charter-house. The house in which he was born should bear an inscription. He carried, he was wont to say, few scholastic acquirements from Sutton's foundation. He was born to read men, not books; and destined to find in London society, high and low, in London drawing-rooms and in London streets, inexhaustible materials for his ever-ready and, in its way, inimitable pencil.

The name of a friend, and that friend a man of genius (for such was Mr. Leech) is the cause of recalling many little reminiscences, at all times pleasant; but when Death has closed the all-observant eyes of that friend,—when we must say,—

> "The hand of him here torpid lies
> That drew the essential forms of grace;
> Here closed in death the attentive eyes
> That saw the manners in the face;"

they return with additional associations of sadness and delight. Such mingled feelings are the writer's at this moment. We (who have flourished from 1834 to 1864) shall not have the good fortune to see another John Leech.

> "A king's or poet's birth doth ask an age."

The residences of men who will be remembered hereafter deserve to be pointed out, and, if possible, preserved. When Mr. Leech first made himself a household picture in ten thousand families, ten thousand taverns, ten thousand coffee-houses, and a long "*et cetera*" of places, he was living at No. 9, Powis-place, Great Ormond-street, London. His farewell to Powis-place, and removal to Brook-green, where he first made immortal "The Brook Green Volunteer," was commemorated by a "dance" in his then empty house in Powis-place, and a supper, *à la* Gunter, which carried mirth and light heels into milk-boy hour next morning.

From once aristocratic Powis-place, as we have said, he removed to Brook-green, where he had his ever faithful and cheerful friend and editor, Mr. Mark Lemon, for his near neighbour. A bow-shot off he found Comic Blackstone A'Beckett, of *Punch*, living near Punch's Railway (of whom many pleasant reminiscences might be told), and Mr. Perceval Pips Leigh, whose Diary in the manner of Mr. Pepys conveyed with marvellous truth and quaintness the follies and fashions of London as it *was*. Here he saw the Brook Green Volunteers (Wilkie was to have painted a Brook Green Fair,—a fair in earnest,—which the writer of this column "In memoriam" remembers to have seen, with all its innocent pleasantries,—more like Bury Fair in Shadwell's amusing comedy than Bartholomew Fair in Ben Jonson's still more amusing comedy of that name); and Brook Green will be remembered hereafter for the artistic talent which its turf gave rise to.

This inimitable artist is said to have been sent to a too early grave by the continual boredom of Italian organ-grinders. One of his "Punch" *punch-on-the-heads* of these perambulating nuisances, who can readily forget? The cut is slight,—the work, perhaps, of half an hour, done while dressing for dinner, or a late meet with the hounds with his friend Mr. Mowbray Morris at Melton Mowbray. The "wording" beneath the cut is as follows:—"One good Turn deserves Another. The lazy Organ-grinders have had it all their own Way with the Monkeys. Now, then,—Change about!" The gorilla, wild with delight, is pulling the chained Italian grinder to the top of his monkey-board. The grinder himself is equal in *effect* to the grinder in Wilkie's inimitable "Parish Beadle."

Let us here recall to remembrance another all-perfect-in-its-way "cut" of our deceased friend. The literature of the illustration is as follows:—

"CANINE.

Patron.—'Well, but you don't mean to say that such a dawg as that could *draw* a badger?'

Fancier.—'Not *draw* a badger! Why, bless yer 'Art, it would be a little 'Oliday to hum!'"

The listless doubt on the swell patron's mind, and the cheeky assertion on the fancier's, are alike perfect from top to toe; while the representation of "the dawg," to use a slang and common expression, "beggars description."

It is well known beyond the walls of the Royal Academy of Arts, the dear little Garrick Club, and the solemnities of the Athenæum Club, that Mr. Leech was desirous of becoming a painter—a painter in oils. We have no wish to reveal the handsome sums which inimitable Mr. Leech received from the ready-handed and high-minded proprietors of *Punch*; but it should not be concealed that Mr. Leech was naturally desirous of perpetuating on panel or canvas—or both—some of the thousand scenes he has drawn on wood,—here with a touch of Hogarth; there with a touch of Wilkie; and here again with a touch of Frith. He wanted a true eye for colour: his fancy worked faster than his hand: he tried in a small way and did not succeed. Nor are we altogether sorry: the time spent in *perhaps* perpetuating *one* perfect work would have undoubtedly robbed us of *many* all-perfect sketches. This *all-observant* artist acted, as an amateur, in *three* plays,—in Shakspeare's "Merry Wives of Windsor," as *Slender;* in Ben Jonson's "Every Man in his Humour;" and in Beaumont and Fletcher's "Elder Brother;" and yet, strange to say, he had no one quality to commend him as an actor, except his "figure," which was handsome, and his "get up," which was perfect. He was great on "wood," but not on "the boards."

England has lost a valued friend.

OPENING CONVERSAZIONE OF THE ARCHITECTURAL ASSOCIATION.

The usual *conversazione*, by which the sessions of this Association are opened, was held on Friday evening, the 28th ult. A variety of architectural drawings and works of art were scattered through the rooms, and the band of the 1st Middlesex Volunteers attended to enliven the proceedings. The attendance of members and their friends was numerous.

The chair having been taken by the president, Mr. J. H. Christian, some formal business was transacted, after which

Mr. E. G. Tarver, president of the class of design, read the following report on the drawings submitted for the prize given by Mr. Tite, M.P.:—

"The judges having carefully considered the different designs submitted in competition for the prize given by Mr. Tite, are of opinion that that submitted by 'Cinque-Cento' is, as far as the general character of a design for a police court (in accordance with the instructions issued) is concerned, deserving of the prize. In coming to this decision the judges cannot refrain from noticing the design of 'Justitia' as being well worthy of commendation; as are also the carefully-worked out details and arrangements of 'Utilitas.'"

The President then called upon Mr. J. Johnson, the successful competitor; and, having addressed a few words of congratulation to him, handed him the prize. He also announced that Mr. F. B. Brooks was the author of the design signed "Justitia," and Mr. H. A. Reeves of that signed "Utilitas."

Mr. T. R. Smith brought up the report on the best essay on iron as applicable to architecture. It was as follows:—

"The judges appointed to adjudicate the prize for the essay on iron beg to report that only one was submitted. They are, however, of opinion that it fully merits that the prize should be awarded to it; showing, as it does, a good acquaintance with the subject generally, and considerable familiarity with some of its details. At the same time they cannot but express their regret that a larger number of competitors did not come forward, and their conviction that the subject of the iron prize, and the best method of inducing members to compete for it, deserves to receive the serious consideration of the committee."

It was stated that the writer of the essay was Mr. R. R. Bayne, who is at present absent from England on professional business.

Mr. R. W. Edis brought up a report from the judges of the class of design, stating that, having examined the sketches sent in during the last session, they had "unanimously awarded the first prize to Mr. G. H. Birch, for a series of clever and carefully-drawn sketches; and the second to Mr. R. R. Bayne."

The President then read his address, of which we give some passages. After briefly alluding to the progress and position of the Association, the reader said,—

"The most remarkable additions to our street architecture that have risen of late, are the great hotels. They have the merit of being fine lofty buildings, grand in mass, and of good sky line, having perfection of arrangement and accommodation, and every possible luxury that a vast outlay of money can insure. But, considering that they are built on practically interminable leases, little of this money has been expended on art, and none on figure sculpture, for which no better opportunity is likely to arise. I had rather the money spent on the cross at the Charing-cross terminus had been so applied in or on the hotel; for I think the two (the hotel and the cross) incongruous, and that the latter may possibly be found in the way. Nevertheless, the Charing Cross Hotel is one of the best, and the station behind it very fine, from its size, simplicity, and grand proportions. I fear we must wait some time before our Domestic Gothic is sufficiently developed to present us with a really fine hotel designed on true Mediæval principles. Any one who has looked at London from a distance will admit that these hotels are giving great variety to the very dull general level of house-tops, and, in addition to our towers and spires, add much to its picturesqueness.

Another class of buildings that have been largely added to of late is the music hall. Owing, I fear, to the sins of omission and commission on the part of the lessees of our theatres, hot houses and long and late hours undermine the constitutions: as the so-called adaptations from the French enervate the minds and imaginations of their audiences, these finally succumb to bad costume and sensation scenery of the most reprehensible character. Some of the music halls seem to have embodied in their architecture all the faults that the theatres show in connexion with their managements; and I venture to hope that their number will not be just yet increased.

I have only time to advert to one amongst the numerous works both of architecture and building now in progress in the City, viz., the restoration of Guildhall. We shall shortly, I hope, see that noble building completed with its open timber roof somewhat after the fashion of its sister of Westminster. It was originally covered, I believe, by a roof supported on stone arches thrown across at intervals; but this was ascertained too late for its restoration in that form.

The churches built of late in the metropolis are too numerous to admit of mention here. Many of them show a near approach to perfection in ecclesiastical architecture.

Engineering works ought not to be overlooked. In addition to the station at Charing Cross before mentioned, the works in connexion with the railway at Blackfriars, and many of the new suburban stations, show great signs of improvement, but still leave ample room for further advance. The Association has an opportunity of helping this advance, as one of the prizes next year is for designs in connexion with this latter subject.

Engineers have at last come to the conclusion that their work, to be good, need not be ugly. Charing Cross Bridge is redeemed by gilding and colour. All the small mechanical works of the Middle Ages were seemly if not artistic; why then should we so long have spoiled our greater and grander work for want of a little art and from a love of dirty, black, or dull colour?

I hope the viaduct across Ludgate-hill will agreeably surprise us in this respect.

The Thames Embankment offers unusually fine opportunities for grand works on its quays; which may be great national monuments or night-mares.

As some amongst the many fine works in the country I would instance the splendid chapel of St. John's at Cambridge, to which, I believe, a lofty tower is to be added by the munificence of a private individual, and the new buildings at Christchurch and Merton, at Oxford, as examples of good work; though I question the wisdom of using the Venetian Gothic in the midst of so much that is English." * * * *

"My own opinion is, that however clever we are in the manufacture of glass, we have not yet arrived at the power of designing it, and that until this is the case, the less we execute the better. What is to become of all the bad glass that has been inserted in our churches and cathedrals? Unless another race of Iconoclasts arise, I fear we shall have no room left by the time we have arrived at proper ideas on that subject.

The committee for filling the windows of Glasgow Cathedral evidently think with me, up to a certain point, as they have passed by all manufacturers in this country and imported their glass at a vast expense from abroad. Whether they have fallen from the frying-pan into the fire, I leave to be determined by those who have seen the results.

In the beginning of March Mr. Scott read a valuable paper to the Association, and gave his

thoughts and suggestions on the education of architects; at the same time proposing a scheme for united action with the Institute, which scheme has since been considerably matured, and I hope there is every prospect of it being ultimately carried out. I beg to remind you that you have pledged yourself to the support of this scheme, and I hope you will give your individual and collective assistance to its furtherance.

Many of our members, with whom I most cordially join, think that in the meantime we should get up a class for the study of the drawing of the human figure, so as to be ready to join the larger scheme of the Institute when matured. We have made inquiries as to cost of rooms, models, &c., and a thoroughly efficient artist has offered his services for instruction once a week. Detailed information will be given to members by the secretary of the sub-committee appointed to make these inquiries, and I do not doubt that we shall have many students, both in and out of our Association, anxious to avail themselves of the great advantages that this class will offer.

I think it would be unwise and selfish in the extreme to confine it to the members of the Association only, when there are many students in branches of art connected with architecture very anxious to join us.

I am no way surprised at the anxiety of some of our members to lose no time in entering on the study of figure-drawing, as that study is the basis of all good art.

If we wish to aid in the development of a natural style of architecture, we *must* lose no time; for this great and important study has been hitherto almost entirely neglected by the majority of architectural students, many of whom have been led away by a weak admiration of so-called originality. And here let me remind you of what Mr. Scott told you in his lecture:—'Let an architect be as original and as inventive as he pleases, but let his originality and invention be founded on a basis of knowledge, and not, as much so-called originality most obviously is, on a foundation of ignorance.' I hope that this advice will be taken to heart by all students of architecture, and then we shall see less and less of designs where every true principle of architecture is ignored, and unmeaning details elaborated to a degree that fatigues the eye and distracts the brain.

Vast advance has been made in the execution of good ecclesiastical work, and we should now turn our serious attention to civil and domestic architecture. To do this we must put ourselves on a par with the most successful of builders of ancient times, by a more artistic education, and by the study of the figure; for you will acknowledge that in almost every period good architecture and knowledge of figure-drawing were co-existent.

Our more extended knowledge of all styles of architecture ought surely to give us some advantage over the old men; but I fear our knowledge is only superficial, and must, before any good is realised, go deeper into the fundamental principles by which they were governed."

Mr. Burges, having been invited by the chairman to make a few observations, said he thought it unnecessary that he should do so. He might, however, be allowed to say, that he was glad to find that the Association contemplated a class for figure-drawing, which he regarded as a most essential element in the education of an architect; as, if the profession were to study the human figure more, and notches and chamfers less, the result would be most satisfactory. With regard to many modern Gothic buildings, he felt bound to say that, as a follower of the Gothic school, he repudiated them altogether.

Mr. Hayward announced, on behalf of the Royal Institute of British Architects, that that body had under consideration the suggestion of Mr. Gilbert Scott, with respect to a school for the education of architects; and that a report on the subject would shortly be submitted.

This terminated the formal business of the meeting. The ordinary meetings will commence on the 11th inst., when a paper will be read on "Tone in Architectural Work."

The sketches of the Class of Design will comprise drawings for a large church adapted to the modern ritual.

Decay of Wood Carvings.—We have before us the report of the commission appointed to inquire into this subject, but must postpone notice of it.

WINTER EXHIBITION OF CABINET PICTURES, PALL-MALL.

The twelfth annual collection of pictures offered for exhibition during the darker and more dreary months will be as acceptable as any of its immediate precursors, although much of the distinctiveness that belonged to the "Winter Exhibition" in its earliest successes has dwindled to nought, and the roomful—as far as hanging space may interpret such a meaning—of pleasing and clever works may almost be regarded as supernumerary to the more important and past exhibitions of the earlier season, if the generally even merit of the contributions did not suggest a difference, and a welcome one, in an unusually strict system of selection. Thus of the whole number of its items—some 200—it may justly be said that, with about 10 per cent. for exception, all will be found to repay examination, many to leave an agreeable impression, and a few to evoke genuine admiration and secure a long recollection.

In this last division, Mr. E. M. Ward, R.A., holds a prominent position. He has painted with all his customary vigour and aptitude for expressing character a very touching little incident from French history, titled "The Dauphiness, Daughter of Louis XVI., and Robespierre in the Prison of the Temple" (36), described by the Princess in the Memoirs written by herself.

> "I swept the room every day. . . . . One day there came a man whom I believe to have been Robespierre; the municipal guards paid him great respect: his visit was a secret to the people of the tower, who knew nothing about it. He looked at me insolently, cast his eyes on the books, and after having recalled the municipals, he retired."

The impersonation of the patient princess, as well as that of the audacious intruder, whose attitude and air of assumption are in strong contrast to hers, of meek submission to circumstances, is so strikingly lifelike, and all the accessories have so much reality imparted to them, that this may rank with Mr. Ward's best illustrations of his favourite epoch.

(65) "Near a Brook, through the Forest of Bohemia," if it do not thoroughly well represent Mr. W. C. T. Dobson, R.A., is yet a very attractive and refined specimen, though like (83), "Hide and Seek," by Mr. H. Le Jeune, A.R.A., somewhat too cold and classic.

Mr. W. G. Orchardson shows that he need not confine himself to portraiture to earn reputation; his skilful method of execution tells to extraordinary advantage in a very spirited representation of probable occurrence, (190) "The Challenge—A Puritan's Struggle between Honour and Conscience." There is admirable dash in the action of the cavalier as he is ceremoniously presenting the missive on the point of his long rapier, to the heavily built but by no means unimpressionable Roundhead, whose inclination to receive it is sufficiently apparent, in spite of the religious objections urged on him by his pastor, and evidently his master, who clings to him in nervous dread of his advice being disregarded. This excellent combination of manipulative dexterity and terse conveyance of a story, will cause Mr. Orchardson's name to be looked for in time to come.

(33) "The Flower and the Leaf," by Mr. G. D. Leslie, is poetically conceived, and, like a chapter from a well-written romance, awakens sympathy for very everyday emotional occurrences, which, though appropriated to a fifteenth century experience of them, are felt and understood as if no period could change the susceptibility of their effects. A pretty lady is gazing with pity at a nun, once as fair and favoured as herself, and while she plucks the bright-hued flowers at her will, appears to wonder why only the leaves should fall to the share of others, and why her life's walk should be through a delightful garden, and that of others through a cemetery.

Mr. W. Maw Egley's ambitious and clever historical picture of "Francis I., sick and a prisoner, visited by his sister Marguerite d'Angoulême and the Emperor Charles V." (9), would have been immensely improved if he had judiciously restrained his love for strong colour and lost some of the hard outlines that cut it in pieces; but it has been carefully studied, and would be conspicuous anywhere. Mr. F. B. Barwell sends (46) "The Reconciliation," a smaller edition of his well-known large work.

(57) "Olivia,—Twelfth Night,"—by Mr. T. F. Dicksee; (58) "The Milk Boy," by Mr. Joseph Clarke; (75) "Juanita," by Mr. J. B. Burgess; (76) "Barbelle at Breakfast," a charming little study by Miss E. Osborne; (95) "The Song of the Nubian Slave," by Mr. F. Goodall, R.A. (a repetition of his diploma picture); (101) "Italian Peasant Girl" (not Italian at all, Mr. J. Hayllar, but very good); (110) "While he drinks thy wine, believe not all he says," Mr. J. B. Burgess again; (123) "The Water Nymphs," by Mr. E. C. Barnes; (178) "Raising a Church-rate," by Mr. J. Morgan (a large, well-painted, but rather uninteresting realization of common-place fact); and Mr. G. E. Hick's agreeable ideals, who draw the long-bow in 191, and two or three other instances, are all to be admired and noted.

There are numerous equally good landscapes, and from among the artists where name alone is guarantee of a certain excellence, Messrs. Linnell, Creswick, R.A., Hulme, Vicat Cole, A. Gilbert, Percy Williams, Syer, Leader, Boddington, Peel, Hargitt, Dawson, and Bright may be given. Mr. E. W. Cooke, R.A., has (42) "A Sunset, near Venice;" and M. H. Koekoek some clever seascapes.

Nor is cattle painting unrepresented, thanks to Mr. T. S. Cooper's "Sheep" (183) and Mr. Davis's ditto in "Warm Weather, Artois" (86) very like truth, and admirably composed. Moreover, there are several very noticeable foreign pictures that assist considerably to uphold the value of the gathering, and these have all their leaven of interest, culminated in a charming example of M. Edouard Frere, entitled "The Writing Lesson" (3), one of those little gems that defy imitation, and are provokingly isolated by the indescribable quality of this superiority. It is difficult to account for the exquisite pleasure derived from watching so homely-looking a child scrawling, in a very immatured style, at a very matter-of-fact writing-desk; and for such a satisfying result with so little effort to secure it,—a peculiarity, though diffused in a lesser degree throughout the emanations of others who belong to the same school, by which the works of this incomparable artist are at once identified. Had nothing of his been present to question it, M. Duverger's "Granny's Helper" (62), a mite of a maiden threading an old dame's needle for her, and other similar productions, would claim for their authors a larger share of naturalness and grace than they really possess in common with M. Frere.

ARCHITECTURAL REVERIES.

THE WINDOW.

Many unexpected questions are continually presenting themselves for solution to the student of architecture, in its beginnings, its developments, and its artistic principles; and associations seemingly more akin to the course of history, the domain of poetry, or the philosophy of the sentiments are constantly arising. Every architectural façade consists of certain distinct features, each with its special function to perform; and each being capable of almost as great a variety of expression as the features of the human face itself. Architecture has also a language: not a spoken language, still less a written language; yet one producing an infinite number of impressions, of the most diverse character, upon those to whom it is addressed. To the worshippers beneath the lofty vaults of the cathedral it gives forth, as the outbreathings of its stately forms, soundless, yet solemn and beautiful words, full of majesty and dignity; while to those passing within the massive walls of its prison-houses, and entering their frowning doors, clothed with huge fastenings of bar and bolt and chain, words seem to be muttered of terror and discouragement such as might have suggested the line of Dante,—

> "Voi che entrate, lasciate ogni speranza."

On the other hand, to the dwellers in "summer palaces," the dreamers in the shades of garden pavilions, or the loungers in sparkling theatres, architecture addresses itself in light and playful phrases, bright with the graces of fanciful ornament and the symbols of quaint and elegant device. Architecture has also its literature: not one of mere letters, yet one engraven like the chronicles of Assyrian kings, upon the walls of its own monuments. And it is a literature, not of art alone, but of poetry and history. Yet it is a literature, whose pages are only intelligible to the true devotee. To those only who are endowed either by nature or study with that refinement of artistic sentiment which we call taste, will those pages reveal their fullest meaning. And these are comparatively few; for true taste is a faculty that emanates from the highest

regions of the intellect. "*Il faut avoir de l'âme pour avoir du goût*," has been truly and poetically said by a French author, and the aphorism is as true as it is poetical. It is, in fact, by "taste,"—that delicate feeling which seeks order, proportion, and fitness in things,—that man is distinguished from every other living creature; and a great authority, Cicero, has expressed this idea with his usual neatness and accuracy. When speaking of man's instinctive search for a law of order and measure for his words and actions, he describes the quality of the thing sought as "quid sit quod deceat," *that which is fitting*, an axiom which applies equally to works of art as to moral actions; and where the power to test the presence or absence of this abstract "fitness" is not possessed, the absence of "taste" may be inferred as a natural and, in fact, inevitable consequence.

In speaking of architectural features, and their expression, the windows of a building may aptly be called the eyes; for although a humorist might urge that, at all events, they are but glass eyes, the thrust need not disturb an analogy which it is not sought to make a very close one, as many other and more cogent objections might be made to the accuracy of the analogy: for instance, the number of this architectural feature, ever varying according to the necessities of the building, might at once appear an all-sufficient objection. And yet it is not altogether fatal; for the single eye of the Cyclops might find its architectural analogy in the solitary window in the vaulted dome of the Pantheon, destined to light the entire building; and the hundred eyes of Argus might find their parallel in as many different palaces. And then, it is not absolutely necessary to call in fable to our aid, for among the lower orders of animals the number of eyes is exceedingly various, according to the nature of their organization and its requirements. The larvæ of the *telephoroides*, a genus of beetles, are only furnished with a single eye; while those of the genus *cassida* have three; and those of *staphilides* four. The larvæ of *lepidoptera* (the butterfly class of insects) have almost invariably six; while in other types of lower animal life the eyes are often exceedingly numerous. And so the creator of architectural eyes may make their number ever varying, according to the exigences of the work he is constructing, without utterly destroying the analogy which it has been sought to establish.

Let us, therefore, call the windows of a building its eyes; for those features certainly seem to look forth upon us, like living eyes, with more or less of welcome or repulsion, according to their expression, the result of their design, position, and proportion. The gracefully-designed window, with its superincumbent lines of architrave or pediment, serving as the architectural eye-brow, beams upon us with a bright and pleasing glance; while the ill-formed opening, without a single line of moulding, like an eye without lids, glares towards us with a broad uncomfortable stare. In still ruder forms of structure the offensive expression is still more marked. And when accidental defects are superadded,—in the shape, for instance, of broken panes patched with rag or paper,—the effect of a human eye damaged by vulgar conflict or loathsome disease, and wearing its squalid bandage, seems so graphically reproduced that we gladly turn away. And thus, both in beauty, and at the other extreme of the scale of art, the analogies between the architectural eye and the human eye seem to persist in asserting themselves. Such are a few of the considerations which seem to invite us to look upon the windows of a building as its eyes so long as we regard its exterior; and when once inside the structure the windows actually become our own secondary eyes, through the medium of which we are alone able to distinguish external objects. This architectural feature appears, then, to be a most important one, and it may be well to devote a few lines to the consideration of its artistic treatment with reference to the functions which it has to perform and the expression it ought to wear. To a certain extent, indeed, this effect has ever been produced, almost unconsciously, by the architect, forced by the necessities and general character of the work in hand to the acceptance of certain unescapable conditions; but this is not sufficient,—an architectural feature should be something more than a tolerable and unavoidable accordance with the purpose of the building of which it forms a part. The effect of the most perfect possible accordance should be achieved, especially in a window, by the most careful and even caressing treatment; which ought to result in imparting to the feature a character so unmistakeably appropriate, and so felicitously expressive as to invite, or rather command, immediate remark and approbation on that especial account. To produce this effect there is no occasion to resort to exaggeration, nor to become in any way over-emphatic: it is only required that the emphasis, strong or slight, should be in the right place. In seeking for this expression, this emphasis, the student should above all things take care not to be led away by the fascinations of any well-marked style belonging to a former epoch; for in this way he may be led to impart to his design a form and character which, however beautiful in themselves, and from a certain point of view, will yet be inconsistent with the manners and the spirit of the period in which he lives. This is an aberration towards which there are strong temptations, as so many are to be found among the public who honestly admire modern Gothic buildings without having advanced so far in the culture of their taste as to ask themselves whether it is right to admire a slavish readaptation of the styles of the past to the works of the present. Let the architect beware of servile reproductions: an "architectural eye" of one period may have been very beautiful in its own age, when instinct with the artistic life of its epoch; but galvanized into an unnatural existence in the present day, it cannot legitimately possess the same charm. It is as the bird of beautiful plumage when stuffed by the naturalist and placed in a glass case, compared with the same creature full of life and motion, gorgeous colours glistening with the chequerings of alternate shade and sunlight in its native forest.

At all events, it may be safely stated, that the forced introduction of an obsolete style is sure to carry with it more or less of inconsistency. For instance, at the period when the finest of the Italian palaces of Florence and Rome were erected, it was a necessary condition in the residences of a turbulent and almost lawless race of feudal nobles, in an almost constant state of petty warfare with each other, that they should be at once both house and fortress. The windows were the features most especially influenced in their treatment by this necessity. The walls being built of far greater thickness than was necessary for mere architectural solidity, the openings for light had to be pierced through this massive defence, giving to these "architectural eyes" a deep-set character and forbidding expression which was increased by the necessity of making them as small as possible, consistent with the admission of a tolerable supply of light; and they were as few and far between as could be devised consistently with imperative requirements. The style of these buildings, designed by a truly artistic race of Mediæval architects, is almost invariably striking, and often beautiful,—qualities which have tempted modern architects to resort to absolute imitations of their forms; and in adapting them to modern residences, even the small size and small number of windows have been observed with scrupulous accuracy. This observance has certainly had the effect of reproducing the true Mediæval character of those buildings, but at the vast cost of appropriateness, and, what is worse, at the expense of that proper supply of light and air which, according to our modern notions, is most important, not only to comfort, but to health.

The window, above every other architectural feature, should characterise and illustrate the epoch in which it is designed. In all former periods it has done so, and why not now? This may be said to have been the case, even in the very earliest forms of the builder's art, which fitly suit and reflect the rude age for which they were constructed. In some of the primeval monuments of barbaric architecture still in existence, the window is simply that *wind-hole* which is the parent name of the modern term; and in that form it tells plainly enough the story of an era in the very infancy of art of which it is the rude artistic reflex. In later epochs, in the East, for instance, another example may be taken of the accurate reflex of contemporary manners exhibited in the domestic architecture of the period, and especially in the character of the windows. At the period alluded to, the luxuries of modern Oriental civilization, after their kind, had begun to develop themselves; the manufacture of glass had become more or less generally established, and its use adopted in all dwellings of superior class, in which the luxury of more spacious windows was soon perceived when they could be made to exclude the inclemencies of the weather, either by day or night, by a material which did not exclude the light. But a difficulty occurred in adopting the more spacious window, as openings thus increased in size would at once become a far too vulnerable place of attack in a land where countless tribes still exist whose natural profession is that of the robber. To obviate this objection, the houses of the wealthy were built with their principal windows looking into an interior quadrangle or court-yard, often large enough to be treated as a garden, while the external walls had scarcely a single perforation worthy the name of window. Here is a phase in the story of the window which is highly characteristic. It speaks eloquently of political misrule, and, at the same time, of that domestic jealousy which the social institutions of Asia tend to develop and foster. It gives also a special character to most of the Asiatic towns,—an aspect, in the main, desolate and uninviting,—for there are no glistening windows to look down upon and welcome the stranger, nor to reflect the glories of sunrise and sunset, nor to afford those glimpses into the inner life of the dwelling; while all of these effects are such cheerful characteristics of our Western and Northern cities. And, even as those Eastern dwellings meet us with no beaming look of welcome from sparkling window-lights, so, the women of that Oriental town furtively pass those they chance to meet with eyes closely veiled, or with only one cyclop-like orb glancing from its half concealment; and the analogy of the architectural and the human eye establishes itself again.

Somewhat similar phases of domestic architecture and manners to those just referred to existed in Greece and Rome during the earlier periods of their civilization, though modified to some extent by the nature of the freer forms of European institutions. From this and other causes the "window" never became an important feature in Roman architecture, either monumental or domestic. Nevertheless, both in Greek and Roman times, at a later period, there were windows,—true windows,—not merely openings closed at night by the biclores, or wooden shutters, but even decorative windows, in the houses of the rich, provided with regularly constructed framework of wood or metal, in which laminæ of the transparent *lapis specularis* were fixed, somewhat after the manner of our modern glass; and eventually glass itself was used, though in very small pieces, as proved by remains of glazed windows disinterred at Pompeii.

But it was not till after the fall of the Roman empire, and the establishment of the modern kingdoms by the Northern races, that the true history of the window commences; and, to understand the origin and development of the modern window, it will be necessary to take a rapid survey, commencing with the very dawn of Celtic civilization. Not glancing casually at various epochs and phases of art, but following out with some degree of consecutive severity the gradual development of the window as a prominent artistic feature in one of the noblest of the fine arts.

The early dwellings of the Celtic and Scandinavian races were, as recent discoveries have shown, of the simplest and rudest description; and whether formed of rough wickerwork, like the remains lately found in the Swiss lakes, or structures still more rude (though made with masses of stone) like some of the older Irish cabins, which may still be seen in Galway and Connemara. These primitive edifices had but one opening; and that aperture represented in itself the door, the window, and the chimney. The separate window, or wind-hole, as a distinct feature, marks a long subsequent stage of the builder's art. Of the wind-hole of this epoch we find synonymous terms in the *ventara* of the Spaniards (which is still the Spanish name of the modern window), and the *venthue* of the Danes, both terms clearly expressing a mere opening without any protection. In the German term, *fenster*, and in the Italian *fenestra*, we find traces of the next stage of development of this important architectural feature, that in which it was protected, as both terms imply, by a network of hempen rope, or a lattice of wire, or more solid metal, as a security against either the nocturnal or daylight entrance of domestic or wild animals, whose uninvited presence had doubtless been found inconvenient, or something worse, in times when wolves and bears were common and even numerous in the nearest woods, which still

covered a large portion of the country. Thus each successive kind of window forms a commentary on contemporary manners and general civilization.

As the forms of modern civilization progressed windows rapidly assumed a more and more important place in European architecture. Its earliest increasings in size and decorative character were, however, in those windows which, as in our Mediæval castles, received their light from an inner court, as in the East, and from partially similar causes. In our early castles, therefore, while yet the external openings were, as a general rule, little more than mere slits in the wall, and used as loopholes for the arrows of the archers as well as for the admission of light, those looking into the courtyard had already become large and decorative features in the general design of the building.

The next step may be most conveniently traced in the walled towns of the Middle and immediately succeeding ages, in which the windows, even of the fronts of the houses, were in an analogous position to those of the castle which looked into the interior court, protected as these town windows were, by the general external rampart, from the missiles of an enemy. Under these conditions the dwellings of towns began to exhibit wider and wider windows, till in the timber-built houses of the fourteenth and fifteenth centuries the fronts became nearly all window. But this architectural arrangement, which destroyed the individual character of the window, did not insure a great abundance of light; for the glass was so green, and the leaden lattice so clumsy and thick, that a room with one entire side all window was still but poorly lighted, according to our present notions of a light room.

In houses of this description the windows of the ground story, or *rez de chaussée*, were almost invariably unglazed, and protected at night by wooden shutters, similar to the Roman biclores; while in the daytime, if wares were exposed for sale in these unglazed windows, they became more strictly *fensters* or *fenestras*, as being invariably furnished with a protective network, no longer as a security against wild beasts or domestic ones, but to preserve merchandise from the unceremonious appropriations of the light-fingered members of the urban population, who appear to have always been a very numerous and active class in every community. The absence of glass and the presence of network are remembered by our grandfathers even in the streets of London.*

THE PUBLIC HEALTH.

The last report by Mr. John Simon, made by direction of the Lords of the Privy Council, contains a large amount of valuable information, and is one of a series of volumes prepared for presentation to Parliament on the various conditions of the public health.

Amongst other matters of importance, the present state of vaccination has been carefully considered, and the fact is referred to that, in the Grand Duchy of Baden, in eight years, not one single death from small-pox was reported, and, in Copenhagen, no deaths from this pestilent disorder have occurred in thirteen years. In London it killed 2,000 in one year.

To get rid of small-pox altogether, clear evidence shows, all that is needed is an effective system of public vaccination; and it is recommended that there should, for the use of London, be fifty or sixty stations, and no more, all under the regulation of an independent authority, instead of, as now, being under the charge of a variety of persons. It is also suggested that there should be an effective registrar, and law to compel parents to have their children rightly vaccinated. There is, doubtless, much need of improvement in this matter, but, as our readers know, there is at present a law for the enforcement of vaccination, which has for years been allowed to remain a dead-letter.

In connexion with the food of the industrious and poorer classes, Dr. Smith has made extensive inquiry in the metropolis and several districts throughout the country. It is stated, in respect to the food of men and women, that a woman must have for her daily food at least 3,900 grains of carbon, and 180 grains of nitrogen, or as much nourishment as is contained in a half-quartern loaf. A man usually wants about a ninth part more. It appears that, on examining into the conditions of forty-two families of sick, it was found that the amount of food was insufficient; and in thirty-one families of needle-women the amount of nourishment was much below the mark. Farm labourers were also found to be far below the proper standard.

The average cost of a week's food was found to vary in different places, being lowest at Macclesfield. The cost of food for each adult for a week, was from 20d. to 23d. The food in Bethnal-green and Spitalfields was found to be less nourishing than in other places. The London weaver buys his tea and other provisions in the most costly way, providing just enough for each day's necessity. Of all classes, however, the state of the needle-women was found to be the worst.

The account of the food supplied to the labourers is favourable; but from our own careful observation in both town and country, we fear that, upon the whole, many of the accounts have been too favourably given: the pale faces and shrunk limbs of women and children are obvious in the English counties, in the east of London, and elsewhere; showing that, in addition to the evil conditions of the dwellings, there exists a degree of under and improper feeding which is not sufficiently shown in the reports.

The principality of North Wales was found more prosperous than South Wales.

In Scotland the shepherds increase their meat diet by eating the lambs and sheep which die of disease. The use of milk and oatmeal gives an advantage to the Scotch farm labourer. In Ireland Dr. Smith found abundance of potatoes, meal, and milk. When potatoes are plentiful, and used with butter-milk, they form the entire food of the peasantry. The daily allowance at a farmhouse to each man is said to be ten pounds and a half of potatoes, and three pints of milk.

The average cost of a poor Irishman's food is 1s. 10d. a week; of a poor Scotchman's, 2s. 10d.; and about 6d. more for a poor Englishman. The Irishman's food costs about 2¾d. a day, the Scotchman's less than 5d., and the Englishman's about 5¼d. a day; and yet Dr. Smith says that the poor Irishman gets the most nourishment, and the poor Englishman the least.

This voluminous report deserves the most careful consideration, and should in some condensed form be placed in the hands of the working classes. In most of the mechanics' institutions and chief libraries of the provincial towns the parliamentary reports have either been supplied, or they might be obtained with but little trouble. Good service would be rendered by those who would condense such reports and put the most instructive portions into the form of lectures.

The information of Dr. Barnes, physician to the *Dreadnought* hospital ship, should meet with attention, so that proper care may be taken of that useful part of our population who chiefly man our mercantile marine. Dr. Barnes says, that nearly half of the men admitted into the sailors' home, at Poplar, are suffering from scurvy at the time of their admission, and that a twentieth part are seriously diseased by it. We seem, as regards the state of a number of our merchant-ships, to be drifting back to the days of Christopher Columbus and Captain Cook. Dr. Barnes remarks that this loathsome and dangerous disease "is seldom met with in the cabin." There should be a careful inspection of every outgoing and incoming English ship, by competent authorities, whose duty it would be to see that fines, &c., in instances of neglect, are duly imposed.

Reference is made to unhealthy trades, especially dressmakers and needlewomen, tailors and printers. In consequence of overcrowding, and other sanitary neglects, the death by consumption amongst tailors and printers is enormous. The mortality of the London printers, between the ages of 35 and 45, is twice as high as that of the male agricultural population.

Mr. Simon reiterates what we have for so long insisted upon, that the effective ventilation of all in-door working places must be made compulsory by some appropriate provision of the law.

The extensive use of opium and such-like drugs is mentioned. Dr. Bristow and Mr. Holmes report on the state of the chief civil hospitals in England, Scotland, and Ireland; and, in connexion with the facts which have been gathered, Mr. Simon says that "hitherto, without exception, the plans for artificial ventilation for wards have been costly and fatal failures: whatever other appliances exist, a ward must be perfectly ventilated by its window."

* To be continued.

THE LONDON BAKERS.

It is to be regretted that the new Act for the better sanitary regulation of bakehouses should meet with so strong an opposition from the masters that in several instances it has been necessary for the district inspectors to seek for penalties for breaches of the law before the magistrates. One provision is, that boys under sixteen years of age shall not be admitted to work in bakehouses. On this point there is a good deal to be said on both sides. There are, however, but few boys engaged in this business, which is carried on for the most part by journeymen, many of whom are natives of Scotland, or who flock to the capital from other towns. In many provincial towns, and indeed throughout many country districts (particularly, we are told, in such places as Edinburgh, Glasgow, &c.) the labour of boys is used to a large extent, and there can be no doubt that this is very injurious to health. In London the duties of the bakers' boys are not easy. As we have said, however, there are but few boys employed in the London trade, although the Act applies more especially to them as regards the hours of work.

It is respecting the nightwork of the journeymen that there is the most dispute between the masters and those who have the charge of the public health. Amongst the men, the desire for change is general; and we think it is in a great measure the prejudice which has resulted from long practice alone that causes the masters to object to arrangements which would prove of ultimate advantage to the customers, to the workmen, and to themselves. Many of the more intelligent know this, but they have not the courage to act contrary to the custom.

The majority of the men, many of whom have families supported on scant wages, fear to run the risk of losing their work, and are shy about expressing their thoughts on this subject.

In the course of our experience we have met with so much opposition from persons even of general intelligence and kindly feeling, as to the removal of causes of ill health, or changes in arrangements, which from our disinterested point of view were objectionable and dangerous, and of actual disadvantage to those who were so much in favour of its continuance, that we have ceased to feel surprise at some of the master bakers putting forth arguments which are as much opposed to rectitude as they are to common sense. Some deny that the sleeping in the bakehouse occurs with their knowledge; but an intelligent baker—Mr. Samuel Ayton, of Bermondsey,—says that, "there is not a master in London, performing nightwork, who does not know that the men will get all the sleep they possibly can" in the bakehouse. Mr. Ayton further remarks, that the fact is, that the Legislature, disgusted with the cruel treatment of the *employés*, revealed in the report of Mr. Tremanhere; and finding themselves unable to deal with adult labour, aimed a side blow at the dangerous and pernicious practice of nightwork; and as it may be denied that there is any cruelty in the system, this authority relates his own experience, as follows, merely premising that to his own certain knowledge the treatment of the men at the present moment is far worse than anything experienced even by him; and this we can readily conceive, when we remember the details which we once extracted from a London master-baker's son as to even his own personal hardships, far less those of workmen not so likely to be favoured. The authority alluded to said: "For seven years I worked in London as a journeyman baker. I was compelled to work at eleven at night, and remain there till six the following evening. This was continued without intermission till Saturday, when I was allowed to have my only night in bed in the course of the week. Just think of it: nineteen hours per day for six days running every week! and the highest remuneration I ever received for all this toil was 16s. a week. Can you wonder, then, when I tell you, calmly and deliberately, that sooner than go through that seven years again I would commit suicide? Existence to me, under those circumstances, would not be worth having. Our Government would not dare to work a criminal—a transport—in this way; and yet it is constantly inflicted on honest men." He has been an employer for many years, and declares that there is no actual necessity for this state of things. By commencing at four o'clock in the morning, every baker knows that the bread can be in the shop, ready for sale, at half-past nine; and, says Mr. Ayton, as hot bread is not whole-

some,—and the same opinion will be expressed by many medical men,—that is soon enough, in all conscience.

On inquiry respecting this amongst a number of masters and men, we find that when the case is fairly argued, there is an almost universal opinion respecting the need for change. Some even say that by making an arrangement to start work at five o'clock every morning, the baking could be got ready in fair time for the day's consumption.

Mr. Godbold, the inspector of bakehouses in Islington, has made night inspections, and found, as might be expected, a large number of bakers who, after the hours of midnight, were sleeping on sacks. The new Act says that this is not to be allowed; and that the men are not to sleep on the premises, unless there are ventilated bedrooms sufficiently divided from the bakery by partitions. At present the inspectors who have been appointed have a difficult duty to perform. If they make application by knocking at the doors, there is plenty of time for the men to be aroused from their unwholesome resting-places. Cases have been proved which have been evidenced only through windows of the bakehouses looking towards the streets. It is said, however, that several of these have been closed at night in consequence; and thus a means of ventilation is stopped which adds to the existing mischief.

Mr. Ayton suggests that the bakers expose themselves to the visits of the inspectors because they do not like to have their own sleep disturbed, or that of their family, by letting the men in at four or five o'clock in the morning. "But," he says, "let them meet together and agree to abolish night-work in this trade, and the inspector would cease to trouble them."

Notwithstanding all that has been said to the contrary, there is not the least doubt that in the baking trade great abuses exist which greatly need remedying: the present arrangements are murderous to the workmen, who are either destroyed or rendered bodily old before they have reached their prime. Who ever saw a journeyman baker old and in good health? We have asked the age of several men, and have been surprised to find how youthful they really were by comparison with their appearance. The records of the Registrar-General show the high rate of mortality amongst the journeymen who are engaged in this trade.

If such a system is bad for the men it must also be bad for the masters; for it is impossible that any one can do justice to his master's business when he is from year's end to year's end overworked and underslept as bakers are. Nor are the arrangements at present in use good for the bread consumer. The practice of men sleeping and lounging for hours without change of clothing, and, too often, without proper attention to cleanliness; the neglected and filthy state of many bakeries; the gross adulteration of the staff of life, &c.; are *all* also bad for the customer. It would be to the interest of bakers to show to their customers, or to be able to certify, that their premises are in a wholesome condition; and good would be done if the consumers of bread were to see to this themselves, and refuse to deal with persons who do not conform with the regulations. If, however, the agencies at work are not sufficient, the Legislature must, by increased power given to the inspectors, enable them to enforce right regulations.

THE EXPLORATIONS AT KEISS.

THESE explorations, by Mr. Samuel Laing, have been successfully continued, and a great many interesting facts and still more interesting relics brought to light. Mr. Laing, we learn, is to lay the results of his researches before some of the scientific societies of London; and it is his intention, if opportunity should offer, still further to prosecute his researches into the prehistoric condition of the county of Caithness when he returns to the North next summer.

The mound on the seashore behind the village of Keiss has been now thoroughly explored and completely excavated, disclosing the foundations of a large circular building, of the class called in Caithness Picts' houses. A number of bone and stone implements, consisting of arrow-heads, pins, &c., have been found in this mound, and in the one near the old churchyard. There is a singular fact connected with this one at the churchyard. The foundations of the structure rest upon a mound, or kitchen-midden, of shells, largely mixed with bones of animals, pottery, and bone and stone weapons, &c. This mound is of immense size, having been traced for some 20 yards, and it is at least 7 ft. deep. The fact of the foundation of what must have been a Picts' house resting upon the top of this mound seems to assign to the shell-mound even an earlier date than the Picts' houses, though they are of very great antiquity.

A complete churchyard, if we may so call it, or at least burial-place, of the men of the stone era has been discovered, the mounds or cisted graves running in a line, and separated from each other by intervals of five to six paces. Stone implements have here been found in abundance. Some of the skulls have small holes, as if drilled, in the hinder part, and in one a bodkin was found sticking. Was it thus that feathers or other ornaments were fixed on their heads, or the hair itself adjusted by the fixed bodkins? Among the graves was found one of a very superior kind, which Mr. Laing thus describes:—

"I have found the central tumulus apparently of the chief of the tribe, which consisted of a stone cist like the others, but more carefully and massively built, which was buried under a large cairn of heavy stones, from the beach, the whole being inclosed in a solidly-built circular wall, 22 ft. in diameter, and 9 in. to 1 ft. thick. In this cist was the skeleton of a man, who had been about 6 ft. 5 in. in length, and of most massive proportions, but with a comparatively small skull, of a type similar to that formerly described, though of superior conformation. The skeleton lay at full length, reclining on the right side; and in the cist by its side were about a dozen stone weapons of the very rudest possible form."

This great chief could not have been one of the little people whose remains have been so often found.

In the kitchen-middens, along with jaw-bones of animals were found also human jaw-bones, without any trace of the remainder of the skeletons; and Mr. Laing infers that our respectable forefathers of this period may have been cannibals!

THE ANTIQUARIAN DISCOVERIES AT BRADWELL.

A MEETING of the Essex Archæological Association has been held on the site of these discoveries in Essex, on the seashore, at Bradwell, one of the extreme points to which the land of the county extends. The purpose was to examine and illustrate the remains, evidently of a very early period in our history, which the works of the Essex Land Reclamation Company have been instrumental in bringing to light.

For the purposes of this company excavations were commenced on the side of a field, at one end of which stands a curious ecclesiastical-looking building, supposed to have been connected with the lost city and military works known as the chapel of St. Peter's-on-the-Walls, but now used as a barn; and while antiquaries had been looking out at sea for the site of Ithanacester, and tradition asserted that in our grandfathers' days ruined pillars were to be seen there at low water, the navvies laid bare part of the foundations of important buildings on the dry land. Happily this came under the cognisance of Mr. J. O. Parker, the owner of the land, who at once had men set to work to make excavations higher in the field, whose labours soon laid bare other parts of the massive walls of what had evidently been a considerable fortress, and enabled its shape to be traced. The site of a Roman camp was also shown by the discovery of various articles.

It was to view these relics and investigate their historical bearing that the meeting was held.

The company first assembled in the building alluded to—the popularly known chapel of St. Peter's-on-the-Walls,—and here Mr. J. O. Parker gave some account of the discoveries. In course of his remarks he said,—

"So far as the foundations can be traced at the present day the station would seem to have comprised an area of about three acres, defended towards the land on its southern, western, and northern sides, by walls of enormous thickness, and with an external fosse now nearly filled up. On the seaward or eastern side it would appear to have been open, like Richborough, or at all events not inclosed by a continuous wall of masonry. Such excavations as have recently been made would seem to favour this notion. They show no continuous line of foundations on the eastern side, but they have, nevertheless, brought to light abundant evidence of the rude encampment of the Roman soldiery."

The Rev. F. Spurrell then read two papers, one titled "Notes on the Early Building on the Shore commonly called the Chapel of St. Peter ad Murum," and the other, "Notes on the Roman Remains at Bradwell-on-Sea."

The various articles that had been obtained from the excavations were then examined, and this closed the proceedings in the chapel.

The company then visited the excavations, and afterwards returned to Bradwell; and, after a glance at the village church, which is under restoration, the party sat down to dinner, at the King's Head Inn, Mr. T. Sutton Western, presiding.

A paper by Dr. Bell was to have been read, "On the Nomenclature of Ithanacester, and its identity with the Othonæ of the Notitia Utriusque Imperii, cap. 71," but this was not done.

STONEHENGE.

THE remark of your correspondent, "W. B." that "the large blocks have a grain of marble," corroborates the evidence given in the following extract from the first edition of the "Parliamentary Gazetteer of England and Wales," published about two-and-twenty years since, by Messrs. Fullarton & Co., and of which work I am the author:—

"The materials of Stonehenge have been described as consisting of three sorts of stones; * silicious grit forming the outer circle and the trilithons; green granite [syenite or greenstone] forming the small uprights; and micaceous grit, 'which strikes fire with steel, and contains some minute spangles of silver mica,' forming the altar or hearth-stone. And it has been supposed that the first must have been brought from the vicinity of Marlborough, and the second from Dartmoor; but where the third came from has not been decided. At a late meeting of the Architectural Society of London,† however, the president stated that, on a recent inspection, he had ascertained the curious and interesting fact that *the large stones are of pure white foreign marble* (!) *regularly wrought in primate blocks;* that the discolouration is only superficial; produced, like the irregularities of shape, by the weather; and that the granular character within is closely analogous to that of Carrara, obviously not Penthelic.

This not only opens a wide field of conjecture respecting the means by which they arrived at their destination; but appears to lend *some* countenance,—bating the marvellous of course,—to the ancient tradition of 'the wondrous voiage that Marlyn made into Ireland to fetche theise stones; the bringinge of the same before out of Africe into Ireland by Gyauntes; the vertue of the stones theimselfes, and the art of the prophet [Merlin] in removinge theim when no force could prevayle; and such other thinges which Jeffrey of Monmouthe at large discourseth.'

If they have now been clearly proved to be foreign marble, we certainly feel more inclined to fall so far back at once upon the ancient tradition, than to agree in opinion with Mr. Clarke, the able president of the Society above named, that they may have been brought here by the Phœnicians direct from Greece.‡ Mr. C. also suggests that they were probably introduced into this country by Southampton water, from the upper navigable point of which there only remained a distance of 23 or 24 miles of land carriage to be overcome in conveying them to their present position; and that the expense and labour thus undergone to obtain stones of a white aspect for the great Druidical circle tends greatly to strengthen the hypothesis that the arrangement was connected with the worship of the sun or moon."

I may here observe, however, that as the ovates or novitiates were dressed in green, and the Druids in white, the smaller green stones, and the greater white ones, may rather have had relation to these than to either sun or moon. Moreover, Hu or Hee, "the glorious god of the two origins," terrestrial and celestial, and who spoke in the god possessed, was the true Druidical Sun. Thus, in the Taliesin records, we find Hu speaking, even while described as a sun:—

"In the sacred course, on a serene morning, when Hu sent forth his dancing beams, making this demand: I require men to be born again, in consideration of those liberal ones [those liberated ones?] who will be [who have been?] lost: those *blessed ones*,—they have been intoxicated and lost."

Those spoken of as having been lost appear to have been the "children of the evening," the Gwyllion, night wanderers, fairies, or witches, who "sang the night songs" of the god.

The stone to which the Rev. Prebendary Scarth alludes, as "apparently intended to direct observation, at the summer solstice, to the point of the rising sun," may have been so intended, and yet Stonehenge, for all that, may not have been "a temple connected with *solar* worship;" for we see, even from the brief quotation just given, and there are other passages in

* The word "sarcen," used by the Rev. Prebendary Scarth, simply means "a stone drawn from the native quarry in its rude state."

† The predecessor of the Royal Institute.

‡ And thus, too, may be reconciled the apparent inconsistency of various probabilities with the ancient tradition that great stones were brought hither from Ireland to commemorate the massacre of the British nobles by Hengist and his fellow traitors. For, as it is the large stones alone that appear to be of foreign material, the tradition must apply to these alone; and it is therefore after all probable, as the appearance of the other stones long since suggested, that they had stood in their present positions *previously* to the addition of the larger, as a renovation and improvement of the more ancient circle, on a greater scale. The fact, at all events, that Hengist here called the conference before alluded to seems to show that this vicinity had been previously adopted at least for *state* purposes, if not,—as the great stones and barrows were said to be commemorative of the dead,—for *sacred* purposes also.—*Note in Parliamentary Gazetteer.*

the records of a similar kind, that *sunrise* was specially, even if emblematically, alluded to in connexion with the worship of Hu or Hee, who, though their *solar* god, was not the *outward* sun.

The idea which has prevailed that the outward sun was an object of worship among various nations may be correct as regards the drivelling senility of religion, or superstition, into which some such nations may at length have merged; but that, at a previous time, all of these nations knew better, there is strong reason to believe. Thus, the *winged sun*, Ferocher (Pharaoh?) Lord, or Guardian Angel, of Egypt, appears to have been identical with god-possession, or "the blessed life of the gods," of which Iamblichus speaks, and with the Hebrew "*Sun* of righteousness, . . . with *healing* in his *wings*," who *rises* on and in the regenerate, or the "born again,"—as with the Druidical Hu or Hee of the "dancing beams" and the "serene morning" himself; and identical also with the "Day Star" or Sun of the Christians, which "arises" on men's "hearts."

That at least the more enlightened in heathen nations perfectly well knew the distinction between the *Sun* they worshipped and the outward sun I may here give just one curious proof, among the many which might be adduced. In *The Asiatic Journal* of Bengal, vol. 17, page 69, is a translation, by the Librarian of the Society, of a Mythraic inscription at Udayapur, within the Bhopal agency, which was copied by Captain J. D. Cunningham, and is thus given:—

"Inscription from the Vijaya Mandir, Udayapúr. This is a Mythraic hymn.

'OM! Salutation to Savita! We worship the luminary who is an enemy to darkness, who shines and destroys the strong shackles [attraction] of this revolving earth . . . . [a poem] composed by me, who, though weak-minded, am zealous, and was *inspired by Him who dispenses heat** and is able to develope our intellect. O *Sun!* the *moon*, having imbibed the rays of thy reflected light, attained her wealth of the *health-promoting* herb [the moon plant] which produces Amrita [nectar] when *offered* in oblation *to the Fire*;—which Amrita, again, is sought by the gods: therefore, I say, verily thy greatness is inconceivable. Thy visible rays are liable to destruction, but thy invisible rays are eternal: therefore thy rays are twofold. O Lord of Light! we salute thee. Thy invisible rays are atomic, and the cause of our soul [of our spirit?] and the visible exist in the form of the creation. He who, by eradicating worldly desires, *becomes* the source of conferring happiness [becomes the god?], and like a billow plays on the ocean of intellect, purified by knowledge and meditation, can be somewhat appreciated only by the devout. *That* pure Light positively is the great Brahma, which shines in the *Heavens*, and is the cause of the happiness of this passing world. *The ignorant* [lit. film-eyed] *believe him to be the light that is seen*, but the learned [lit. clear-sighted] know *the purifier of minds* to be *the Great Mind*. He who knows thee to be *the life of the world*,† or the world a part of thee, is a learned [gayani]; but he who thinks otherwise is a dunce. Ye cowards, infatuated by worldly passions, and ever actuated by doubts, ye take not His protection: why not, by worshipping him who is a bar to misfortune, approach to the Contented Commander,‡ who leaves you a wide door open to the stronghold of salvation. *He attains salvation who prays the Sun*, orally and mentally, and performs virtuous actions."

The ovals within the inner circles at Stonehenge seem to be regarded by some as having relation to the ellipticity of the earth's orbit; but it must be recollected that ovals had quite another meaning in heathen mythology. The candidate for initiation often passed through an oval, whence he was born again, as from the womb of his Great Mother; and of the initiate it was said that they were "twice born," or "first born in the egg [or oval], and next born out of the egg;" or, as Hierocles in his Golden Verses taught, they first became men and then became gods. Such were the ovates (as men) and the bards (as gods) among the Druids. In this view, the Fire-striking altar stone within the central oval was doubtless "the stone of power" (as in "the circle of Loda") "the prophetic stone," or "Bedd" of the goddess or Great Mother, on which the ovate lay, in the entranced and inspired state, as a bard, an Apollo, or an Oracle, and from which god-possessed state of mystical life-in-death he was resurrected, or "born again," into "newness of life," as an initiated Druid.

The idea of Mr. Scarth that the *outermost* circle represents a *crown*, reminds one of the concentric circles called the Hebrew Sephiroth, or Celestial Splendors, the *outermost* of which circles was called the *Crown*,—that is, the Crown of Splendor,—the Crown of Glory.

It is a singular circumstance, stated by Inigo Jones, as I find quoted by me in the "Parliamentary Gazetteer," that the cover of a thuribulum, or incense-cup, was found within the area of Stonehenge; and that Stukeley states that a tin tablet was found there in the time of Henry VIII., inscribed with many letters, but in so strange a character, that the most learned antiquaries of the age could make nothing out of it. Some, he says, called it, Punic, others Irish.

Stukeley, I may add, dug close to the altar of Stonehenge, and, at the depth of a single foot, came to the solid rock. Others have also excavated there, but also without any special discovery. The stone, however, does not appear to have ever been lifted; and, if there were any records or relics beneath it at its placement, probably such records or relics are there still.

JOHN E. DOVE.

* "The Lord God is a *Sun*," and is "like clear *heat* upon herbs."

† "The life of all that are in the world" is precisely what the Druidical sun, Hu, is called.

‡ *Vide* Plato.

FRANCE.

AT the Bercy station of the Lyons line, on the 28th ult., a locomotive engine shunting an empty cattle-train backwards by too violent a movement, sent the last two waggons through the end buffers of the platform and the parapet of the bridge over to the boulevart. It took several hours to clear away the *débris* of the trucks, which filled up one of the arches and put a stop to the circulation. This happened at 11 p.m., and happily no one was injured.

On the 29th ult. the celebrated Admiral Romain Desfosses was interred with military honours at the Invalides. In 1845-46 he executed a hydrographical survey of the island of Bourbon. Appointed in 1859 commander-in-chief of the Mediterranean squadron, in the month of November of the same year he dismantled the Tetuan forts on account of their insult to the French flag.

The Prefect of the Seine has received a petition, signed by the most influential merchants, agriculturists, and corn factors, praying for the erection of a Corn Exchange in Paris, somewhere near the Halles Centrales.

M. Chatel has discovered in the numerous tumuli on the summit of the Bois de Valcongrain (Calvados) abundant traces of incineration, calcined bones, charcoal, &c., and a quantity of hand-dressed flints and a stone hatchet. He has also traced the remains of a *cromlech* of circular form connected with a long avenue of Celtic stones.

SPAIN.

London to Madrid direct.—A few statistics relating to the Great Northern of Spain may be interesting to our readers. The main engineering difficulties of the line were comprised within the thirty miles, as the crow flies, between Beasain and Olazagutia, the extreme points of the pass. It took eighteen months to construct this last bit, upon which were concentrated an army of 12,000 labourers, including miners from Piedmont, carpenters and masons from France, and navvies from Aragon and Castile. Of the latter there were 5,000; of miners, 3,000; stonemasons, 1,000; quarrymen and stone-cutters, 1,000; smiths and metal-workers, 400; waggoners, 400; and of the class "labourer," 1,000. Villages were improvised in ravines and on the mountain slopes, with hundreds of stables for mules, and sheds for carts and waggons. Storehouses had to be built and filled with provisions of all kinds; nor were hospitals forgotten, in the event of casualties. To blast those thirty miles of granite, limestone, marble, and sandstone, and boulders big as cathedrals, it required 14,000,000 lb. of gunpowder, chiefly imported from England, and to fire the trains of the mines 2,250 miles of slow-match. England and France also contributed 12,000 tons of coal, 12,000 cubic mètres of timber, 2,000 tons of iron for the viaducts, and 1,000 tons for the tools. There were also brought into requisition 20,000 shovels and picks, 460,000 planks, and 3,000 barrows. The gradient between the two points above mentioned is 15 millimètres per mètre, or about 1 ft. in 330, or 16 ft. per mile in round numbers. At Olazagutia, the traveller has attained an elevation of 3,000 ft. above the sea level. We are indebted to the Madrid correspondent of the *Star* for these particulars.

The Madrid Water Supply.—Formerly the water supply of Madrid was as defective as is its drainage at the present time. It is now copious, and the element is pure and excellent in quality. It is derived chiefly from the Guadarrama mountains, a range visible from the terrace of the Queen's Palace, and distant about thirty miles from Madrid. At a point called Ponton de la Olivia, and at an elevation of some 10,000 ft. above the sea level, a dam was constructed across a gorge so as to intercept one of the sources of the Manzanares.

At about two miles from Madrid an enormous reservoir was established, into which the water is conveyed by aqueducts and pipes. Thence, conducted through other pipes of large calibre, resting on blocks of granite, it flows under the streets of Madrid, in sub-ways easy of access from above, well ventilated and lighted, and is thrown, by the simple force of its own power of ascension, to the very tops of the highest houses. The splendid fountain at the Puerta del Sol, the jet of which when full on is 200 ft. high, with a circumference of 6 in., is fed by it, as are the numberless "taps" from which, by means of hose and nozzle, the streets are watered and cooled. The system of works established for the collection of the water and for its distribution was commenced in 1853, under the direction and after the plans furnished by his Excellency Don Lucio del Valle—the Government engineer—and was completed in 1861. These works are on a colossal scale. Others are in progress,—a second reservoir, opposite to and as capacious as the one already referred to, being in course of construction.

THE FINGERS OF TIME.

THE hand of Time has many fingers, which are working, some by quicker means, others by slower; but all equally sure to destroy the labours of man. The salts and acidities of the atmosphere, the pelting of winter and summer storms, the changes in the temperature of the atmosphere, and other matters of a similar description, are important elements of decay. To fight against their external action is a constant endeavour of the custodians of buildings of every description; to defend the woodwork by periodical coats of paint,—to maintain the roofs, and keep the action of the weather confined to the outside, is an important duty, which, if not attended to, leads to rapid destruction. See, for instance, many of the picturesque and noble castles of Scotland, and extensive structures in many parts of England now, where the roofs have been permitted to fall in, the glazing of the windows has failed, and the weather been allowed to play in the richly-carved and finely-fashioned apartments. The glory has departed; and, with a rapidity that seems most surprising, the once stately fabric becomes a mass of shapeless ruins.

There are, however, many causes of decay, especially in dwellings in towns, which are but little noticed. Amongst these are the discharges that, with the sound of a volley of rifles, are made upon doors by footmen and the postman, which cause the ornaments to dance upon the mantel-pieces, and the plasterwork to tremble and shiver. There is also the banging of doors,—an abominable practice, which should be especially avoided by ladies. The movement of many feet in the ball-room, however "light and fantastic" may be the toes, is a cause of wear and tear. The passage of heavy carriages moving quickly on the adjoining pavement, and the trembling of the earth in the vicinity of underground and other railways, are the means of loosening the cement and other work. Inside dwellings of the ordinary kind, especially many of those in the metropolis, the processes of cleaning lead to the rapid wear of woodwork, which the constant wetting and rapid drying, especially in the summer time, cause to split in all directions. In tenemented dwellings, especially, these act on the ceilings, and, together with the constant movement of feet and various shocks, cause them to be rent and marked in a map-like manner, and eventually to fall and expose the lathwork. The busy fingers of mischievous children also do their work, picking holes in the walls, removing the handrails, and often stopping the closets and drains, by attempting various experiments. The children must not be altogether blamed for this, for there are careless or ignorant housewives and servants who are an incessant source of mischief, stopping up the sinks with tea-leaves, housecloths, and many other matters, and leaving the water-ball unattended to: by these means either depriving the place of water, or flooding the basement in a way which injures the foundations;—and of all the sources of damage to dwellings there are none more serious than damp and the effect of insufficient drainage. In consequence of bad and insufficient drains colonies of rats tunnel through the basement, and in time undermine the premises by their incessant sapping. Mice, in their

way, are a source of mischief and annoyance. In the night time, when sleep does not come readily, they may be heard noisily scampering in the plastered partitions or gnawing at the skirting-boards, carrying out, perhaps, according to their views, a principle of ventilation, or making places of ingress and egress for themselves and families: these little creatures thus do much mischief.

The "dry rot" is swift and terrible in its effect, eating through and rendering rotten in an incredibly short space of time the most massive beams, and spreading in all directions; often, provided that right measures are not used, setting the labour of years at defiance. On looking around, the observing eye sees hundreds of other agents which are the sure means of making the present pass away. It is, however, a principle inherent in human nature, to fight against the ravages of time as much as possible; and praise and honour are due to those who rear substantial and beautiful buildings, which may stand in their integrity before the eyes of succeeding generations.

OLD ENGLISH HOUSE BURNINGS.

While lately making an examination of the local histories of several provincial towns, we were struck by the numerous accounts which appeared of raging fires that had in some instances almost entirely destroyed the dwellings. In Banbury, there were several great fires: at Stratford-on-Avon, there is the same account; as there is, too, at Aylesbury, and many other places. The general spread of fires, particularly in the reigns of Queen Elizabeth and James I., is noticeable. At Stratford-on-Avon, in the 36th & 37th years of the reign of the Queen,* two dreadful fires occurred, consuming 200 dwelling-houses; and in 1614—only two years before Shakspeare's death,—another fire there is said to have consumed fifty houses in less than two hours.

The cause of the numerous fires happening in so many English country towns during the reigns of Elizabeth and James, may, we think, be partly found in the great changes which were taking place then,—as there are now,—in the condition of the country. At the Reformation, numbers who had been associated with the religious establishments, and also many thousands of the armed retainers of the nobility, were driven to find fresh sources of employment, and devise new kinds of industry; and this would naturally have the effect of forcing the people into the towns; and, for their reception, there were provided ill-built and inflammable cottages, which were little better than hovels, with walls of wattle and roofs of thatch.

As regards the timbered houses of a substantial kind, roofed with tile or slate, there is plenty of evidence to show that they escaped when all around had been destroyed; but from the thatch, especially after a hot season, by the touch of a spark in a few minutes there was produced a power of flame which spread like wildfire around.

Out of the evil there arose a certain amount of good; for, from time to time, as calamities occurred, dwellings were reared in a better manner: a fire-watchman was set on some tower, to give speedy warning of danger: water-buckets were placed in the churches; and means used to keep in order pools and streams of water that might be convenient in case of fire.

We have been led to make these brief remarks, in consequence of having noted with pleasure the satisfactory change that has now taken place in many of the country towns, which have entered into rivalry with each other as to the best means of preventing loss by fire.

The system of protection from fire in villages and farm steadings requires also to be considered. By a little foresight much mischief might be prevented in most farms. Water, with very little trouble, can be placed conveniently for use, and a length of hose might be provided at small cost.

In connexion with villages and very small rural towns, it is worth while to remark, that the improvements in the arrangements of the metropolitan fire-engines, have rendered the parish engines next to useless; and many of these might be disposed of with advantage in such situations as we have indicated.

* At this time the population of Stratford-on-Avon did not number so many as 1,000.

GROCERS' HALL COMPETITION.

The Court of the Grocers' Company having determined to rebuild their hall, on their land in Princes-street, near the Bank, invited six architects to prepare designs for it, proposing to present each of them with the sum of 100 guineas, upon receipt of his plans, with specification and estimate, and to entrust the erection of the building to the author of the approved design. The dimensions of the several rooms required, and a block plan of the oddly-shaped plot of land available, were furnished to each competitor. The following architects accepted the invitation, and have furnished designs:—Mr. E. M. Barry, Mr. Blomfield, Mr. Boulnois, Mr. Currey, Mr. Penrose, and Mr. G. G. Scott. The designs are now before the court for consideration. One great object sought is the appropriation to building purposes of as much as possible of the Princes-street frontage, in conjunction with the estate in the Old Jewry, after providing an appropriate entrance to the Hall.

Amongst the, wisely, very few instructions given to the competitors was the requirement that the scale for the plans should be ½ in. to 10 ft., and for the elevation and section 1 in. to 10 ft. Even this, however, we are told, has been departed from by one of the architects. The proposed outlay is about 60,000*l*.

DRINKING FOUNTAIN FOR BARBADOES.

A Gothic drinking-fountain has been executed by Mr. T. Earp, sculptor, from the design of Mr. J. F. Bentley, architect, for Bridgetown, Barbados. Inclusive of the steps and bases (2 ft. 8 in.), to be constructed abroad, it will stand 24 ft. in height. It may be described broadly as consisting of two parallelograms of Portland stone, one on the other, terminating with a pinnacle of red Mansfield stone. Allegorical figures in bas-relief of the cardinal virtues ornament the four sides of the base, and beneath these figures are appropriate maxims in Gothic characters. Surrounding the jet, which is on a bronze cistern-guard, are placed Bishop Ken's well-known words, "Praise God, from whom all blessings flow;" and immediately overhead is a figure of Temperance, with the maxim, "Be sober-minded." Surrounding the lower end of the base are the words, "This drinking-fountain was presented to the city of Bridgetown in the year 1864, for the benefit of thirsty wayfarers." The second parallelogram has green marble columns at the angles, and in various parts of the whole are marble and porcelain inlayings. The forms generally are somewhat "lumpy," but as a whole the fountain merits praise, and will adorn its site.

THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

His Grace the Duke of Cleveland has signified his acceptance of the office of President of the Association for the ensuing year. The congress has been fixed for the last week in August, to be held under the presidency of his Grace, at Durham. The president has favoured the Association with an invitation to his seat at Raby Castle. This noble and interesting historical monument, which will be illustrated and described by the Rev. C. H. Hartshorne, with the cathedral at Durham, and other famous landmarks of history in the north, promise a more than usually interesting meeting.

SCHOOLS OF ART.

The Coventry School.—The annual exhibition of drawings of the students of this school has been held. The drawings are reported to be of a high degree of merit, those of the ladies especially showing most praiseworthy proficiency, and being far superior to any produced by them on former occasions. The annual meeting of the subscribers and friends was held at St. Mary's Hall, and was well attended, many of the principal inhabitants being present. At the twentieth annual meeting for the distribution of prizes, it was stated in the report that the number of local medals attained at the last examination was 15, and of national medallions, 4. This was the result of five months' work, in place of twelve. The school has again received from the Government, on account of the national medallions of last year, works of art to the value of 30*l*. The number of pupils has largely increased during the year. The number attending the afternoon and evening male classes is 104 against 73 last year. Evening ladies' class, 10; and the ladies' class 38, against 28 last year. The number of boys in the public schools who were examined last year was 107, of whom 79 passed. The least satisfactory feature in the report is the fact that the financial deficiency now amounts to about 127*l*. Votes of thanks to the head master, Mr. Anderson, and the second master, Mr. Frost, and to others to whose exertions the school has been indebted, were passed at the meeting.

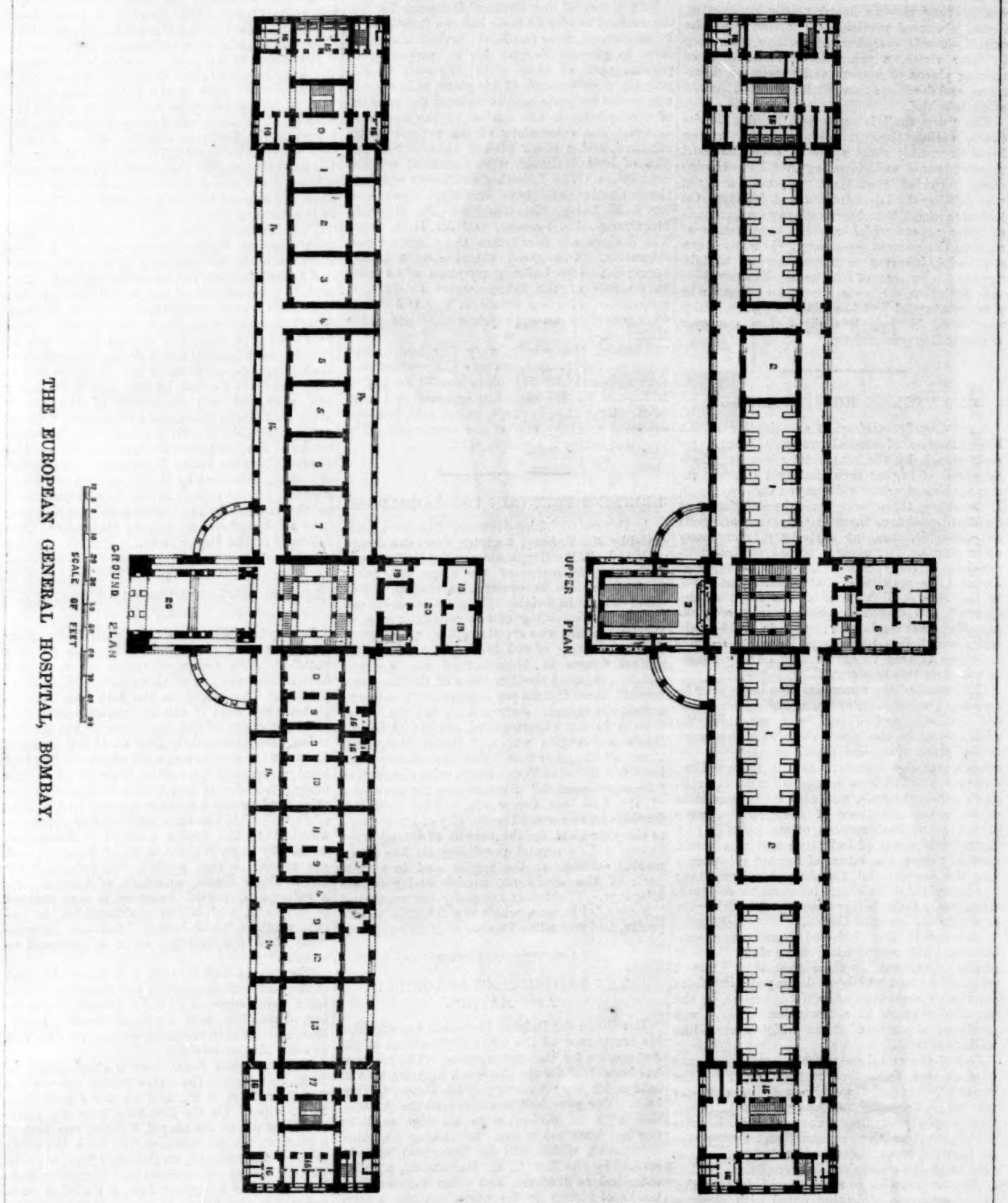
The Gloucester and Stroud Schools.—The authorities at South Kensington have paid a compliment to the students of the Gloucester and Stroud Schools, having communicated their wish to purchase six of the works sent up for the last national competition, with a view to their being sent as studies to other schools. The works selected from the Stroud School are a painting of a begonia and a design for ecclesiastical hangings, by Miss Emily R. Stanton; a drawing of a bird's nest, by Miss Rose E. Stanton; and side and end elevations of the Great Western Railway Company's locomotive "Theocritus," by Mr. F. H. Davies. The selected works of the Gloucester students are an outline of plants by Miss Fanny M. Francis, and a study of historic ornament by Miss Kemp. The Misses Stanton, having regard to the benefit conferred on the country by the Government Art Schools, have kindly offered to present their works gratuitously to the Department.

THE EUROPEAN GENERAL HOSPITAL, BOMBAY.

It may be remembered, that early in last year premiums were advertised for designs for this building. The design of which we now give illustrations was one of those submitted in competition. The judges, in the first instance, reported that none of the designs submitted fulfilled the whole of the conditions of the competition, and consequently they could not proceed to award the premiums; upon which the Bombay local government instructed them to place the designs in order of merit, and to apportion the prize fund among a certain number of the best of them. This was done, and the first place was awarded to the design marked "Honor alit artes," by Capt. Wilkins, R.E., of Bombay; and the second to that marked "Koh-i-noor," by Mr. T. Roger Smith, architect, of London. At a subsequent period, however, it was decided to carry out, with a few modifications, the design marked "Koh-i-noor," and our illustrations show the building as it is proposed to erect it.

The ground-floor is raised 3 ft. above the level of the surrounding ground; and this story, which has a clear height of 14 ft., is devoted to receiving, dispensing, and accident wards; living, sleeping, and bath rooms for various officers; and to other similar services.

The two upper floors have a clear height of 18 ft., and contain the wards (which are—on the first-floor, 23 ft. 6 in., and on the second-floor, 24 ft. wide). On the first-floor, over the *porte-cochère* is placed the chapel, forming one limb of a kind of transept, while at the back the other limb of this transept, on the same floor, is occupied by the operating-room and nurses' rooms. Over these, on the upper floor, is placed a residence for the house surgeon. Adjoining the accident-ward and operating-room, and placed centrally with regard to every part of the establishment, are two hoists; one for patients, and a smaller one for provisions, &c. The kitchens and offices are to be detached buildings, with covered communications. In front of all inhabited rooms, front and back, stretches a verandah (or loggia), 10 ft. wide, as solidly constructed as the building itself. Portions of this will be made use of by the attendants, and hence the ward, scullery, and nurse's room, found essential in European hospitals, are not needed here. At each extremity a series of baths and lavatories are constructed, and separated from these by a wide space, with a free current of air always playing through it, are placed the conveniences. The entire frontage of the building is a little over 500 ft.; and the height, from the ground level to the ridge of the roofs over wards, is 66 ft. Most of these arrangements, and many of the actual dimensions, were fixed by the medical officers of



THE EUROPEAN GENERAL HOSPITAL, BOMBAY.

the establishment, and a plan embodying them formed part of the instructions issued to competitors.

The ventilation of the wards is carried on by the windows, which are very lofty, and placed opposite each other. The lower part of each window has casements acting as doors. The upper part has casements hung at the bottom to transomes, and opening inwards. Ventilating openings are also provided close to the ceilings. In each window frame there are hung, not only glazed casements opening inwards, but also casements, filled with Venetian blinds, opening outward; and it is also proposed to supply means for closing, when necessary, the outer openings of the verandahs. The building will face the west, from which quarter a pleasant sea-breeze blows daily during a great part of the year; but it is necessary to be provided with means for shutting out both wind and rain during the monsoon.

The structure will be principally of stone, but with internal walls in brick. The floors are all to be fireproof, and the staircases stone. The calculations for the ironwork have been made by Mr. W. Stent. The woodwork, which is reduced to a minimum, will be in teak. The building, the foundations of which are in hand, will be carried out under the superintendence of Mr. James Trubshaw, the architect to the Rampart Removal Committee, Bombay, from the designs of Mr. T. Roger Smith.

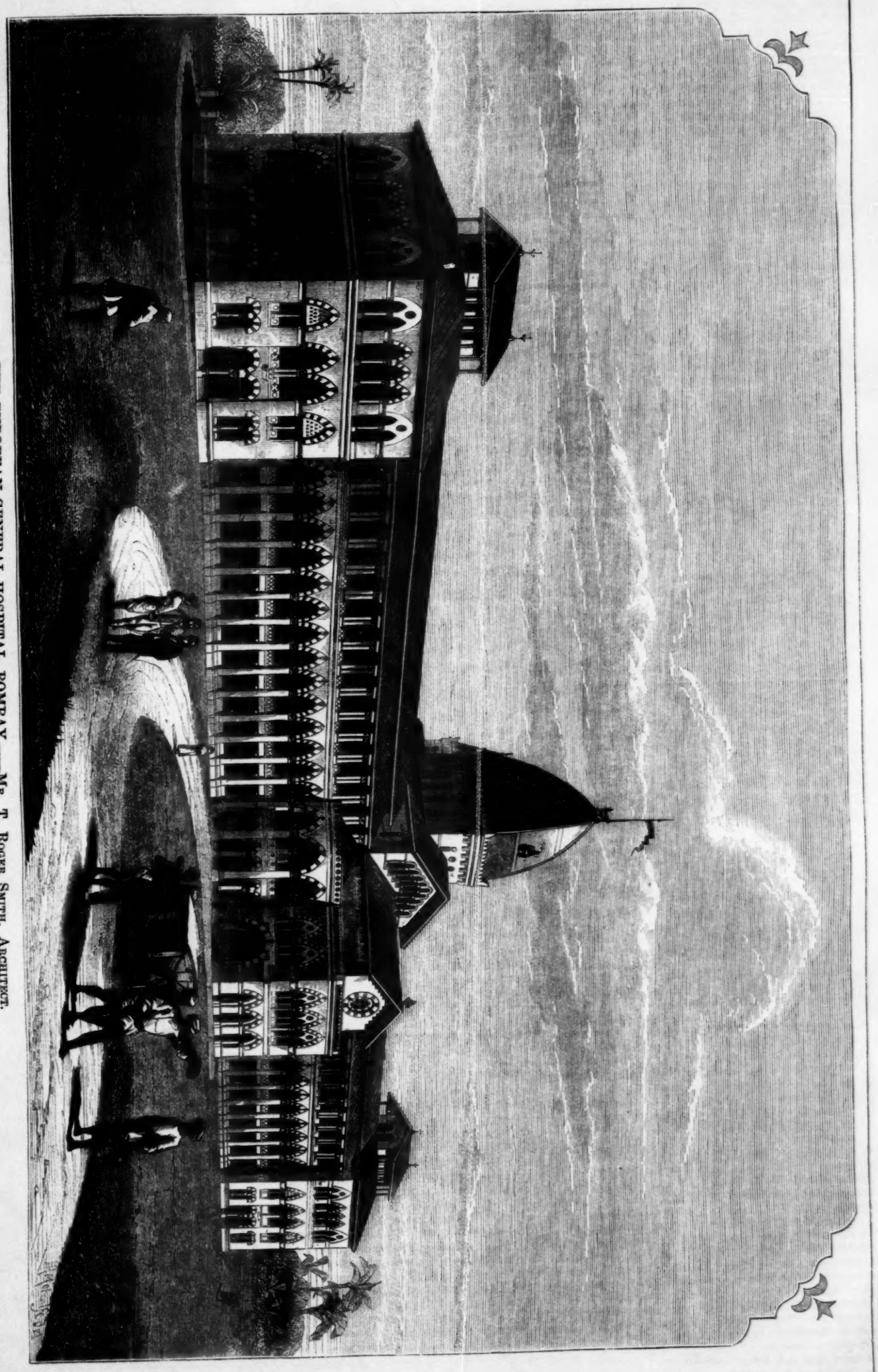
REFERENCE TO PLANS.

GROUND FLOOR.

1. Hospital sergeant's room.
2. Hospital stores.
3. Surgeon's room.
4. Passage.
5. Apprentices.
6. Dispensing-room.
7. Receiving-room.
8. Assistant-Apothecary's room.
9. Bed-room.
10. Apothecary's room.
11. Steward's room.
12. Matron's room.
13. Female ward.
14. Verandah.
15. Baths.
16. W.C. and lavatory.
17. Waiting-room.
18. Accident ward.
19. Lift.
20. Porte Cochère.

UPPER FLOOR.

1. Ward.
2. Surgery.
3. Chapel.
4. Patients' lift.
5. Operating-room.
6. Nurse.



THE EUROPEAN GENERAL HOSPITAL, BOMBAY.—MR. T. ROGER SMITH, ARCHITECT.

AMBERLEY CHURCH AND CASTLE, SUSSEX.

The restoration of the Church of Amberley is proceeding, and has given the opportunity to discover some points of interest in its history. We have received some particulars respecting both the church and the castle, but space will not allow us to do more than to call attention to this very interesting group of building, and to say that it has not yet received so much attention at the hands of competent archæologists and antiquaries as it deserves. Its remote situation in an uninviting marshy district, on the north side of the South Downs, partly accounts for this neglect; but the excuse of remoteness has been removed by the opening of the Mid-Sussex Railway. The manor of Amberley has from the Saxon era belonged to the bishops of Chichester. The existing castle was erected by one of them in the fourteenth century. A matter of peculiar interest which one of its old rooms still possesses, is an imperfect series of paintings executed in the reign of Henry VIII. The meaning of the series has never been discovered: they appear to be female figures nearly life-size. We are glad to say that the neglect of the subject is not likely to continue, as we hear of its being undertaken by more than one of the Archæological Associations.

The work of restoration of the church has been entrusted to Mr. Gordon M. Hills, of London, architect.

QUEEN'S TOWN, SOUTH-EAST AFRICA.

We have received a photograph of a new building just erected for the Queen's Town Agricultural Bank. Only a few years ago the use of an architect was scarcely known there. Now, however, it is different. Various buildings are in the course of erection,—a new chancel to the old church, a notary's office, a merchant's store, a hotel, a new Independent chapel, a Wesleyan school-room, a gaol, and so on. Materials of construction are bad and frightfully expensive. The bank was built of brick, and plastered, with cashier's residence embodied in the plan. The cost, with fittings included, was 1,800*l*. The architect was Mr. Joseph Flashman, formerly a pupil of Messrs. Poulton & Woodman. The builders were Messrs. Read, Key, & Tiffin.

Queen's Town, it will be remembered, is situate on the extreme frontier of the eastern province of the Cape Colony. It is in the midst of a purely agricultural and sheep-farming district, and is a go-ahead English place, only ten years old.

THE NEW FEVER HOSPITAL, LIVERPOOL.

The new hospital erected in the Brownlow-hill Workhouse is now open for the reception of patients. It is built in the shape of a letter T, by which means cross-ventilation, which is one of the primary requisites in buildings of its nature, will be secured. It is built of red and ornamented with fancy brick. It consists of four stories, in each of which are two wards. They are all constructed on the same principle. Each ward will contain twenty beds, so that the building, when fully occupied, will accommodate 160 patients. There are at present 206 fever patients in the workhouse, large numbers of whom are scattered about in different dormitories. Each ward, which is 64 ft. long by 24 ft. wide, will have fourteen windows, seven on either side. Every window has two swivel sashes, one lower than the other: the top one, being close up to the ceiling, will have the effect of preventing any foul air lodging in the wards. In addition to that, ventilators have been constructed on each side of the beds, about a foot below the patient; so that by this means all the impure air will be sent upwards. There are also eight ventilators provided in each ward, on a level with the ceiling, and communicating with the chimney-stack. There is a staircase at each end of the wards, so that in case of fire the patients could be easily and rapidly removed. Fire-places have been constructed at each end,—one with an open flue and hot plate, for the purpose of keeping fluids warm, and the other an ordinary grate. A speaking-tube and double sets of bells, communicating from each ward to the matron's apartments, have been provided. The quantity of air for each patient, when the wards are filled, will be 1,100 cubic feet; but as it is not likely that all the beds will be occupied at one time, it will probably be 1,500 ft. There are six gas-lights in each ward. Attached to the different wards is a nurse's closet, in which is a kitchen range, and a sink with a number of hot and cold water pipes. It might here be stated that none of the nurses are by any means allowed to sleep either here or in the wards, but have to retire to a distinct part of the building. The nurses are changed alternately both night and day. At the other end of the wards is a self-acting water-closet, a hot and cold water bath, a sink and lavatory, which is bountifully supplied with hot and cold water. For men and women separate airing wards have been provided.

The matron's apartment is situate at the east end of the building, at a convenient distance from, and not in direct communication with, the wards, so that the risk of her taking the disease is greatly diminished. Underneath her apartment are the reception-room and the necessary medical offices.

The washing and drying rooms are detached from the buildings, and in these departments the latest improvements have been introduced.

The hospital will cost about 6,000*l*., which sum will have to be provided out of the rates. The architect was Mr. James Wylie, the parish surveyor, and the builder Mr. Edward Hughes.

THE BUILDERS' BENEVOLENT INSTITUTION.

The seventeenth anniversary festival of the above charitable institution was celebrated at the London Tavern, Bishopsgate-street, on Thursday, the 27th ult.; Mr. Thomas C. Lucas, President of the Institution for the current year, occupying the chair.

There was a greater number of gentlemen present on this than on any previous occasion, covers being laid for 230 friends of the charity.

Among those present we observed Messrs. William Lee, M.P., C. Lucas, Banks, J. Murray, J. Plucknett, W. M. Dunnage, T. Robinson, Tilson Lee, George Smith, G. Spencer Smith, D. Myers, W. Hubbock, J. Sheffield, W. Webb, Steddall, Randell & Saunders, C. Francis, Shepherd, Thorn Brothers, T. Ferguson, J. Dent, W. Dent, W. Downs, J. Taylor, G. Dines, J. M. Stroud, W. Hutcheons, T. Cozens, Dove Brothers, G. Head, R. Head, T. Stirling, W. C. Anderson, C. Hack, Tudor & Co., W. F. Fenton, W. Nicholson, D. Nicholson, M. Hall, S. L. Mann, J. Thorn, &c. &c.

At the termination of the dinner, the usual loyal toasts were proposed and responded to.

"The Army and Navy and the Volunteers" next followed, to which Mr. George Plucknett replied on behalf of the Volunteers.

The Chairman, in giving the toast of the evening, "Prosperity to the Builders' Benevolent Institution," said that they had assembled there for the purpose of furthering the projects of the Institution, and stated the objects and origin of the Society. It had been founded by their friend Mr. Thomas Cozens, and he (the Chairman) was happy to see that gentleman's views had been so well carried out. At the present time they had thirty-six pensioners on their funds,—seventeen males and nineteen females; and since the formation of the Society forty-four pensioners had died. He then referred to the gratifying rise of the Institution since its establishment in 1847, and the pleasing fact that they had now invested in the Three per Cent. Consols the sum of 9,862*l*. He would, however, say that that sum could be made much more, for at the present time there were in London upwards of 16,000 people connected with the building trade, and it therefore might be a matter of surprise that such a sum was not far greater; but he thought some system might be devised by which one-third of that number might become contributors of their half-guinea or guinea a year. He hoped that at the expiration of his year of office he should leave the funds of the Institution in a better condition than he found them. He (the Chairman) then alluded to the necessity of supporting such a society, for many tradesmen who were then prosperous in business might, by misfortune, be reduced and come to nothing. Such cases were not fancy, but a reality. There was another point to which he referred, namely, that owing to a want of funds they were unable to elect all their candidates, and as many as fourth applications were made. The allowance to male pensioners was 24*l*. a year, and to the females 20*l*. Now, what he wished was the funds so increased that a greater number of pensioners might be elected; and further, that the recipients might live with their friends, and not be estranged from them by living in almshouses. He then showed that, as candidates were not eligible for election until they were 65 years of age, efforts should be made to relieve their unfortunate brethren as quickly as possible, so that the latter part of their lives might be rendered comfortable. In conclusion, he called attention to the fact of there being another election in November, and he hoped that his words would convey to them his wish on behalf of the Institution, and that his appeal to them would not be in vain.

The toasts of "The Chairman and President," "The Patrons of the Institution," and "The Vice-President and Trustees" next followed, and were duly responded to. With the last toast, however, was accompanied the name of Mr. Thomas Cozens, the founder of the Institution, on whom the Chairman passed a high eulogium, concluding by wishing him "Long life and happiness."

Mr. Cozens returned thanks, and hoped that the Institution would eventually become one of the first in the world. He was one of those who thought that "we should not live for ourselves."

The next toast, proposed by the Chairman, was "The Treasurer," to whom, he said, they were deeply indebted for his warm advocacy of the Institution, and his taking care of the money.

Mr. Plucknett replied by stating, that they were deeply indebted to their worthy chairman, who had taken so great an interest in the Institution; and further, in obtaining so large a number of friends as were present on that occasion.

The "Architects and Surveyors" was next given, and was responded to by Mr. Banks, of the firm of Messrs. Banks & Barry.

The Chairman then proposed the toast of "The Brighton Branch of the Institution, together with its Chairman, Directors, and Honorary Secretary," which was also honoured.

Mr. Harris, the secretary, then read over the list of donations and subscriptions for the evening, amounting to 760*l*. The following is a list of the principal donations:—

Thomas Lucas, 105*l*.; Lucas, Brothers, 52*l*. 10*s*.; Sir S. Morton Peto, bart., M.P., 21*l*.; Cheswright, Sheffield, & Co., 21*l*.; John Kelk, 21*l*.; Messrs. Hubbock & Son, 100*l*.; J. B. White & Brothers, 10*l*. 10*s*.; Geo. Jennings, 10*l*. 10*s*.; Randall & Saunders, 10*l*. 10*s*.; Wm. Cubitt & Co., 10*l*. 10*s*.; Geo. Plucknett (annual), 5*l*. 5*s*.; W. Webb, 21*l*.; Thos. Ferguson, 10*l*. 10*s*.; Jas. Murray, 5*l*. 5*s*.; J. & W. Eastwood, 5*l*. 5*s*.; Stevens & Son, 5*l*. 5*s*.; Lawrence, Brothers, 5*l*. 5*s*.; Beard & Dent, 5*l*. 5*s*.; Lee, Son, & Smith, 10*l*. 10*s*.; Tilson Lee, 5*l*. 5*s*.; Thos. Lambert, 5*l*. 5*s*.; Kebbel, Shepherd, & Co., 5*l*. 5*s*.; Pfeil & Stedall, 5*l*. 5*s*.; G. Spencer Smith, 5*l*. 5*s*.; George Smith, 5*l*. 5*s*.; Joseph Taylor, 5*l*. 5*s*.; G. Myers & Sons, 5*l*. 5*s*.; R. J. Rankin, 5*l*. 5*s*.; Francis, Brothers, & Pott, 5*l*. 5*s*.; Messrs. W. J. Freeman, 10*l*. 10*s*.; H. C. Bunkell, 5*l*. 5*s*.; Dove, Brothers, 5*l*. 5*s*.; Smith & Son, 6*l*. 6*s*.; S. & W. Tudor, 5*l*. 5*s*.; ditto (annual), 2*l*. 2*s*.; R. W. Kennard, M.P., 5*l*. 5*s*.; J. G. Lawford, 5*l*. 5*s*.; Wm. Downs, 5*l*. 5*s*.; Thos. Stirling, 5*l*. 5*s*.; J. W. Battley, 5*l*. 5*s*.; Chas. Hack, 5*l*. 5*s*.; W. C. Anderson, 5*l*. 5*s*.; Henry Barrett, 5*l*. 5*s*.; J. May Stroud, 5*l*. 5*s*.; Thorn & Co. (annual), 10*l*. 10*s*.; Wm. Peters (annual), 5*l*. 5*s*.; E. Bennett & Son, 5*l*. 5*s*.; &c. &c.

VISIT OF THE METROPOLITAN BOARD OF WORKS TO CARLISLE.

On Saturday morning the Metropolitan Board of Works, including the chairman, and about twenty-five members of the Board, accompanied by their chief engineer, visited Carlisle, to inspect the works in operation there for the utilization of the sewage of that city. They proceeded to the Willow Holme, near the main outlet of the sewage of the city, where the works, conducted by Mr. Alexander M'Dougall, chemist, are in operation, and that gentleman explained to the Board the manner in which the sewage is applied to the land he has in hand. The area actually irrigated is about 60 acres. A broad canal is run round the field, which can be stopped up at any point, and sewage diverted into moveable iron channels, from which it is shed upon the land. Mr. M'Dougall stated that the principal part of the sewage of Carlisle is thus utilized. Speaking in rough numbers, the population in the district of which the sewage is not utilized, but is run into the river, is about 7,000 or 8,000; while that of the whole of the other districts of the town (all the sewage of which is applied to the soil) is 22,000 or 23,000 people. Mr. M'Dougall stated there had not been any complaints made of the slightest smell from his land or works, and the Metropolitan Board verified this by their own personal inspection and observation. Mr. M'Dougall further said that he considered the produce on the irrigated meadows

to be about four times as great as that on the land to which the liquid sewage is not applied; and in some parts, where the irrigations had been made more frequently, five times as great.

METROPOLITAN BOARD OF WORKS.

At the last weekly meeting of the Board, the following subjects were considered.

Middle-row, Holborn.

The Board passed a resolution to the effect, that the destruction of Middle-row, Holborn was imperatively called for, and the matter was referred to the Streets Committee for the purpose of taking the necessary measures to carry it into effect.

Expenditure on Thames Embankment.

Mr. Bazalgette made the following report. The total cost of work executed to the present time on contract No. 1 amounted to about 67,000*l.*, of which the sum of 36,180*l.* was for plant, and 30,820*l.* for work done. On contract No. 2, the cost of work done to the present time was about 47,000*l.*, of which the sum of 12,000*l.* was for plant and 35,000*l.* for work. The advances by the Board on Contract No. 1 amount to 60,000*l.*, and on No. 2, to 35,502*l.*

Some members objected to the advance of so large an amount as 90 per cent. when so great a portion of the expenditure was for plant; and at the close of the discussion the matter was referred to the Thames Embankment Committee.

Proposed Improvement Rate.

It was referred to the Streets Committee to consider the desirability of applying to Parliament to obtain authority for the Board to levy an improvement rate on the metropolis, with power to confer with the Government thereon.

Materials for Thames Embankment.

Mr. Bazalgette read a report, signed John Hawkshaw and Thomas E. Harrison, dated 26th ult., in which the reporters say:—

"A considerable portion of the stuff dredged from the river is soft mud, and we are of opinion that this mud is not a proper material to be used in forming the embankment, nor is the embankment formed by the material dredged from the river so solid as that formed by materials obtained from the land and carted on to the embankment. We are further of opinion that a mixture of the materials dredged from the river with the materials obtained from the land will form a better embankment than if the materials dredged from the river alone be used. In the construction of that portion of the embankment forming the immediate backing to the river-wall, we think that materials obtained from the land and deposited by carts parallel to the line of the wall, and thus consolidated as the work advances, will make a better backing to the wall than the material dredged from the river."

The report was referred to the Thames Embankment committee.

LONDON STREET-ARCHITECTURE.

Sir,—Much as I delight to witness improvements in street-architecture in the City, I always turn with pleasure into Austin Friars, to feast my eyes and mind upon the remnants of the fine old church which names the place. It is, as is well known, undergoing restoration; the tracery of the magnificent decorated windows has been renewed; and a fine timber roof crowns the whole. But, as yet, I see no signs of that which is most necessary to impart a thorough and unmingled expression of beauty to the church. The whole of the exterior is stuccoed, and in the centre of the west front, under the great window, is a door, professedly in the Pointed style, yet so mean, so pitiful, so imbecile, as almost to make one believe that the designer, whoever he was, designed it out of spite to the beautiful church he designed it for. Yet this doorway remains, and the stucco remains. The windows are magnificent, though their glass is but tinted; the interior is lofty and spacious; the piers and arches are graceful, but their image is effaced by that of the miserable west doorway. Why not sweep it away? Funds might not allow of the scraping of the building, but the expense of destroying this doorway, and substituting one in harmony with the window above, would not be great, while the good done would be without measure; in fact, as I have said, the rest of the building depends upon it.

While I am speaking of Austin Friars, I might say a word with regard to the new building at the entrance in Broad-street. From Austin Friars it is nothing, being an ordinary plain expanse of stucco. But, passing under the archway, and crossing Broad-street, the view of the building then obtained is rather striking. By the way, this archway is vaulted on the principle of brick tunnels resting on iron girders. These remained in their truthfulness for some time, and looked very well. But I thought it could not last, and the other day I found this vaulting covered with the demon of good architecture. I do not think it is intended to resemble stone; but it was only applied from a repugnance to brick that I cannot understand. Before, the construction was displayed in all its power (I believe the plan is comparatively new, I only know one other instance, externally, in the City), but now it might be anything; it might be mere rotten boards put into the arch form.

This building you mentioned some time ago as being an attempt at the union of the styles. At last it is attempted. The mountain that has been growing for years has at last brought forth its mouse; for a mouse it is, as far as regards the union. I cannot describe the building from the difficulty of standing before it; but I recommend all those who have speculated on the union, to go and see the first attempt, and how utterly it has failed. I do not mean to say that because this building is a failure, the styles cannot be united (though I do say so for weightier reasons); but after so much talk about it, were it practicable, we might have by this time seen it accomplished. But it seems not, and I hope it will never be tried again.

The general effect of the building is good. It is of stone, with a high roof, and stone dormers, with an open parapet between them. This roof and its accompaniments are the best part of the design. The classic ground-floor is ponderous; the cusped windows above are stiff, without life or feeling; but the roof is of good pitch, and is an ornamental feature, which I wish was better appreciated. Though horizontal, its recession produces an angle which connects the horizontal lines beneath it.

In Broad-street, nearer the Exchange, is a small Gothic building, with some good points, of which the tasteful use of brick is the most so; and, talking of Gothic buildings, the example in Cheapside is ruined by the roof being invisible.

In Friday-street is a small Gothic warehouse, with three lofty lancets on the ground-floor, which look very well, and do their duty very well; and, lastly, I hear, to my great regret, that the magnificent pile in Bishopsgate-street, only built a few years ago, I mean Crosby House, is to be pulled down, after a shortlived glory: the reasons for the destruction I do not know.

Ex Stirpe.

ARTISAN ART-EDUCATION.

Will you allow me to add a word or two more to what has been already said on the proposed Art-Result Society? I have tried to bring my views into as narrow a compass as I can, in a prospectus issued. I think there can be no doubt that the idea of bringing into notice and practical recognition the class of men now working out all our *designs* in common things is a good one, and ought to be done fairly, and from those I know would be kindly and gratefully received. My first proposition is that they do *everything* of this kind except *painting*. The *workmen* may be fairly said to be now no longer in fear of forgetfulness, and it will be their own apathy only which can cause them again to fall into neglect.

That the workmen need yet much help and guidance, is clear enough from the Islington show, it being a very unfortunate thing that they all should have got hold of the idea that they are more capable of showing cleverness *out* of each man's trade than in it. All those I had anything to do with in Canon-row, seemed to think this, and that their own special trade skill needed no help or improvement. Nothing but continual urging and reminding will take this notion out of their heads, vital as it is.

I have only been able to hint at the specialities of painting, sculpture, and architecture; but any one who will give the subject a little thought, will soon see what a change will take place if the individual art *hand* work of each artist but once comes to be recognised and *asked* for. The dignity of the Royal Academy must be made to spread itself, and to include the power of indicating the art of common things as in past times. The idea of an Art-Result Association does not exist except in this Royal Academy.

Not to trouble you with more detail, I will but add that I think these three principles will be found to comprehend the general idea which I think we ought to have in view, and which I hope you will agree with.

Premising,—that all the *old art* of any value at all is simply the result of the *hand* and mind labour of each individual artist workman,—there being then really no artists, in our sense of the word;—and further that this old time-honoured way of work is now utterly abandoned by us moderns, except in painting. We have, therefore, to strive, as I think, first, for—

A *practical* beginning for the change towards the *old* method of art work by the hand of the individual artist, and thus to lecture practically, and try to work out in material the recommendations of our lecturers and art teachers.

To enforce the principle that each artist mind is individually valuable and productive, but lost if converted into a mere tool or machine; and that for one artist to work over the art-product of another is simply to expunge it, and thus lose the art-strength of both.

An absolute return to *natural forms* and *life*, whether conventional or otherwise, in all ornamental details, in whatever style of art the artist may be compelled to practise.

I cannot but think that a society founded on these leading principles would do infinite good as a new mode of art-action.

C. Bruce Allen.

CRUMBS FROM THE CLOSET.

1. Nero is said to have been so extravagant as to have shod his horse with silver shoes, and his empress's horse with golden ones. No doubt that is mere chaff. Had they any shoes at all? No equestrian statue,—no bas-relief of horses, Greek or Roman, contains, as far as I know, any trace of shoes. Beckmann says that horses were first shod in England by the Normans. How did Boadicea manage? In the present day, if a horse goes ever so short a journey without a shoe, he is in great peril of getting lame or spoiling his hoof. Beckmann thinks that the Roman horses, as well as the mules and asses, had a sort of sock or sandal drawn on over their hoofs. If they had, the Roman sculptors were so disgusted with their clumsy appearance that they ignored them.

2. The Savoyards were formerly, if they are not still, the chimney-sweepers of Paris. Beckmann says, that in Germany they all came from the Hartz. In England do we grow our own? and why are those poor smutty children such distinguished mummers on May-day?

3. Walpole says that Saxton, Henry VIII.'s fool, was the first to wear a wig in England. Will our lawyers be the last to leave them off?

S. S.

GLAZING.

The plan I find it best to adopt in fixing glass into stone mullions is this:—I first run a coat of double size into the groove, then use common linseed oil putty, with a very little salad oil beaten up with it. The size prevents the oil running into the stone, and showing a stain on the outside: the salad oil prevents the putty ever becoming very hard, though quite firm enough for the purpose of security. The glass, having thus a somewhat yielding bed, will never break by the usual cause.

H. Havell.

ARCHITECTS' PUPILS.

If your correspondent "A. P." will look through past volumes of the *Builder*, he will see that his lament is but a re-echo of letters written long, long since. Year by year the same sad and humiliating plaint appears.

Many architects consider that all they undertake to give their pupils is the "run of the office." This term in practice means that the pupil shall regularly attend and work for his master during office hours, run errands, trace, print, draw, and write according to circumstances. These operations will not make him an architect; yet the master pays but little attention to him, and pockets the premium.

Just contrast the case of a pupil and a junior assistant entering an office at the same time. The first paying a premium of 300 guineas, the latter receiving for his first year 5*s.* per week; 20*l.* for his second year, 25*l.* for the third, 30*l.* for the remaining two years. The pupil (calculating interest at 4 per cent.) will put 486*l.* 6*s.* into the master's pocket; the other, with a like allowance for interest, will have abstracted 121*l.* 6*s.*; the gain, therefore, to the master, by substituting a pupil for a junior, is 607*l.* 12*s.*, an amount which surely entitles the pupil to some consideration.

There are few parents who, wishing their sons to enter a profession, think from 80*l.* to 100*l.* per annum too much to pay for *education*. Nor is it so; but they should be careful to place their sons with a professional man who gives attention to his pupils' education, and they should mistrust those who tell them that "their sons will have all the advantage of the run of the office, will see all the work that passes through it," &c. This is not enough: much

more is needed; and much higher education must be given ere the pupils of our profession can enter into business life in a creditable manner.

There are many energetic men who really work for and with their pupils, though I fear that so much cannot be said for all the members of the profession who accept the responsibility and premium.

It is really a sacred duty, the very life and soul of progress in our art; and it rests with parents to seek out those men who view the education of pupils in the light I now exhibit it. A. F.

*** A pile of letters on the same subject *pro* and *con*. has been received.

FIRE-PROOF FLOORS.

Sir,—The comparative statement of the cost of fire-proof flooring, as given in your issue of Oct. 15, is quite correct, as all are calculated on the same prices; Messrs. Dennet not having made a deduction for tiles and levelling-up for same on the brick arch. The thickness for Fox & Barrett's system varies according to the span; and for 14 ft., the thickness given is what I have had executed under my directions. Henry M. Eyton.

CIVIL ENGINEERS IN INDIA.

Sir,—Will you allow me—with reference to a letter in the *Builder* of Oct. 22nd, which dissents from the views put forward by me in your number of June 11th—to repeat that I spoke only for the engineers who went out in 1855, to Bengal and Bombay. Your last correspondent, on the contrary, speaks for "Lord Stanley's engineers," the first of whom went out in 1859, and with whose case I am not so familiar; but it appears to be very ably stated in the leading articles of the *Calcutta Engineers' Journal* for June 1st and August 1st, from which it would seem that the case of those engineers, as regards promotion and position, is not quite as put by the different correspondents, but rather that their grievances are,—the alteration of leave and pension rules, the smallness of their pay under enhanced cost of living, and the slowness of promotion in the department generally.

I would suggest that they address a memorial to the Indian Government, setting forth the fair claims of the service, which I am persuaded, with your powerful advocacy and that of the *Calcutta Engineers' Journal*, would have good prospects of success. But they should not weaken their case by groundless or trifling complaints, by charges of unfairness, and attempts to depreciate the military engineers, who stand in need of no defender, whatever may be the defects of the public works' system.

A Bombay Civil Engineer.

COMPENSATION CASES.

Cannon Street, London.—At the Lord Mayor's Court on Saturday, before Mr. Karslake, Q.C., as assessor, and a special jury, a compensation case, "Lawrence and Others *v.* The Charing-cross Railway Company," was heard. Mr. Bovill, Q.C., and Mr. Horace Lloyd, were counsel for the Lord Mayor; and Mr. Lloyd, with whom was Mr. Shiel, represented the Company. The claim in this case was in respect of two houses, Nos. 5 and 6, Cannon-street, near Turnwheel-lane, which were built in 1852 by Mr. Alderman Lawrence, and let respectively at 350*l.* and 450*l.* One was leased to Baron Rothschild and would expire in 1868, and the other to a public company and would expire in 1874. The principal question raised before the jury was the value of the reversion. All the witnesses admitted that property in the City of London had greatly increased in value within the last few years. It had "enormously" risen in price within the "commercial area," and a question was mooted whether the houses were within that area. Several witnesses described the houses as worth respectively 650*l.* and 850*l.* a year. One was at the corner of Turnwheel-lane. On the part of Mr. Alderman Lawrence the property was valued at upwards of 30,000*l.*, the highest sum being nearly 30,700*l.* On the other hand, for the Company the valuers estimated the worth of the two houses from 21,000*l.* to 21,600*l.*, including the usual ten per cent. for a compulsory sale. Mr. Ryde, the surveyor of the Charing-cross Railway, considered that 21,644*l.* was a liberal price for the property in question, and he offered a sum of 23,000*l.* Mr. Lloyd entreated the jury not to be led away to give an extravagant sum. He thought that at the present time, when money was fetching eight and nine per cent., a gentleman would be glad to receive his money. Mr. Bovill ridiculed the view taken by Mr. Lloyd, as to the culminating point in the value of property and the means of investment at the present time. The value given had been attained in the last ten years, and was increasing. It showed the great wealth of England, and the large sums made by commerce. The question was not what was to be obtained for money at a month or so, which might be eight or nine per cent., but what it would yield as a permanent investment in the Funds, which would be from 3 to 3½ per cent. The learned assessor, in placing the case before the jury, contrasted the evidence given on both sides, and told them that the question was, what was a fair and liberal compensation for the property. There was nothing in the Act as to ten per cent. being given for a "compulsory sale." It had been the practice for juries to do so, and it was for them to give the amount, or any other sum. The jury retired, and on their return assessed the value at 25,100*l.*, including 100*l.* for fixtures.

Milton's House, Barbican.—On the 26th ult., at the Lord Mayor's Court, before Mr. Commissioner Kerr and a special jury, a compensation case was tried, "Hayward *v.* The Metropolitan Railway Company," to award a sum for the house No. 17, Barbican, in which Milton had for some time resided. Mr. Hawkins, Q.C., and Mr. Potter, were for the claimant; Mr. Lloyd and Mr. Hollway for the company. On the part of the claimant (a lady) nearly 3,700*l.* were claimed, and on the part of the company 1,500*l.* had been offered. In 1860, a person who resided in Essex, and who, it was stated, could not have known "what he was about," leased the premises at 63*l.* for 21 years; and on the same day the lessee sub-let the premises at 125*l.* That lease had 17½ years to run; and the principal question in the case was the value of the reversion. As an instance of the value of the property in the city of London, it was proved in evidence that as much as 2,000,000*l.* per acre had been given. Mr. Commissioner Kerr told the jury that witnesses became insensibly biassed in favour of the parties for whom they appeared, and that was the only way to account for the great difference in the opinion of the values. The jury eventually awarded 3,250*l.*

WATER SUPPLY.

Bath.—A report has been presented to the town council by the city engineer, Mr. Alfred Mitchell, on the subject of an additional supply of water to Bath. The engineer recommends the use of the numerous springs in the St. Catherine Valley, and he has prepared plans of works, including a high-level reservoir at the head of the valley, 14 acres in extent and 45 ft. in average depth, and capable of containing 90,000,000 gallons, at an elevation of 289 ft. above the Abbey pavement;—as also a low-level reservoir in the Oakford valley, to contain 20,000,000 gallons, at an elevation of 150 ft. above the Abbey pavement level. The cost of the proposed supply he thus estimates:—

Reservoir at Cold Ashton	£15,798
,, ,, Oakford	6,825
Purchasing lands and collecting springs...	6,752
18-in. main laying complete	19,937
Engines, pumps, house, and reservoir for Lansdown service	3,200
9-in. main from Lansdown to Combe-down	4,820
Purchase of five mills and rights of water	5,200
Law expenses	1,850
Engineering expenses	1,676
Total	£66,058

Halifax.—The tenders for the construction of three new reservoirs in Luddenden valley, in connexion with the Halifax corporation waterworks, have been opened. The number was eleven. They are still under consideration, but we understand that they are all above the engineer's estimates.

Huddersfield.—A short distance above Marsden, near Huddersfield, is a reservoir known as the March Haigh Reservoir, which belongs to the London and North-Western Railway Company, and is used for supplying a canal, by a tunnel more than three miles long. A few months ago, complaints were made as to the state of the embankment, and some repairs were done; but of late more complaints have been made, and the local Board of the township have taken up the matter. They consider that it is highly censurable to keep it full of water in its present condition. The reservoir is only one of several situate on the Standedge range of hills above Marsden.

Cockermouth.—The local Board determined the site for the proposed waterworks, from the several schemes recommended by Mr. Lawson, C.E. After a long discussion on the merits of the various schemes, it was unanimously resolved "That No. 3 scheme in Mr. Lawson's report of the 21st of October, 1864, for taking the water from the Cocker below Rubby Banks Mill, be adopted, and that the engineering committee be empowered to treat with Major Thompson, and carry out the scheme."

FROM SCOTLAND.

Edinburgh.—At a recent meeting of the town council, a letter was read, from Mr. George Kinloch, intimating the intention of a citizen of Edinburgh to present 2,000*l.* towards the expense of erecting a grand ornamental fountain in the West Princes-street Gardens, similar to the one in the Kensington Horticultural Gardens, and exhibited in the International Exhibition of 1862. He suggested that it might be placed at the foot of South Frederick-street, or South Castle-street, which would still leave one of these places open for the Prince Consort Memorial, should a site be chosen in that locality. The price of the fountain was estimated at 4,000*l.*, but it might perhaps be got cheaper; and the donor proposed that a subscription should be made by the public for the remainder of the price and for the expense of erecting an ornamental screen like that behind Sir Walter Scott's monument. He also proposed that the sum of 900*l.*, which the town council had in trust for the erection of statues for Bruce and Wallace, should be expended in connexion with this matter. The letter was remitted to the lord provost's committee.

Aberdeen.—The movement in favour of a public park for Aberdeen has been stimulated by the steps in the same direction now being taken in the metropolis and elsewhere throughout the country. A committee of working men has had several meetings, with a view of bringing the prevailing feeling into practical shape, and a preliminary meeting of employers of labour and other influential citizens is to be convened, to consider the best means of raising funds, and of putting the matter in form, to be brought before a public meeting of the inhabitants.

Kirkwall (*Orkney*).—The harbour trustees of Kirkwall are at length about to erect an iron pier, which is to run out from nearly the quay-head of their old harbour. The structure is expected to cost from 11,000*l.* to 12,000*l.* There is much complaint for want of harbour accommodation. By the time the new harbour will be completed, another great improvement is intended to be carried out—a matter of the first importance in a town whose principal street, as *John o'Groat's Journal* remarks, makes two "wheelbarrows tremble when they meet." It is purposed to form a new street leading from the lower end of Broad-street, through the vacant space there and the old Castle of Kirkwall, down to the harbour, by removing a block of stores opposite the Aberdeen, Leith, and Clyde Company's office, and by erecting there a landing-quay for the discharge of cargoes and for small craft.

IRELAND.

Dublin.—A house in Grafton-street has fallen. About a week before a house on the south side was taken down for the purpose of rebuilding it, and when the support which this dwelling gave was withdrawn, the house began to show signs that its condition was not at all secure. This, it is stated, together with the high wind which prevailed, accelerated the demolition of the building. A considerable portion of the front fell into the street.

Clonea.—The new Roman Catholic Church of Clonea has been dedicated. It stands in a wild picturesque district of the County Waterford. It was designed by Mr. J. J. M'Carty.

THE COMING WINTER.

After one of the finest summers for fair weather that have been known to most people, the grey clouds, the mists, and the colds of winter, are rapidly closing in; and with this ungenial season there come trials to the poor. They who have seen with their own eyes the privations which exist amongst thousands of families in various parts of the metropolis, even in the bright warm summer time, look with anxiety to the pressure of winter, when work is scarce and household expenses are heavier than at other seasons.

Often, after a bright summer, we have a hard winter; but even if this year should prove an exception to the general rule, there is plenty to be done to bridge over the distress which unfortunately exists not only in the metropolis, but in other towns. The hardships which have been so patiently borne by the cotton-spinners of Lancashire have not yet passed away; and in some localities there is much to excite grave considerations as to the coming cold season. Although in the main the cotton trade is improving, still there are ebbs and flows of the cotton market which cause distress and starvation to thousands. Take, for instance, the accounts we have from Preston, where the office of the relief committee is. It is reported that 2,156 cases, comprising 8,162 persons, were relieved during a week just past. There was an increase of applicants during seven days of 1,001 persons. When the distress was at the greatest in this town, there were 3,347 persons relieved by the fund which was raised by the national subscription. Notwithstanding the figures given by the committee of the management of the relief fund, we find the following state of things:—

"The committee have just taken the census of the factory population, by a house-to-house visitation, when it was discovered that no less than 6,804 factory operatives had either emigrated, found employment elsewhere, or had been removed by the guardians. The chief constable's weekly report shows that in his district there are twenty-three mills closed out of eighty-seven. The number of operatives working full time is 8,583. Five days a week 2,787; four days, 496; three days, 4,503; two days, 67; *and totally unemployed*, 10,988."

Seven deaths from fever have just taken place in Preston in one week, and an inquiry into the state of the infected districts has been ordered. We hope that this sanitary inquiry will be wisely and carefully managed. One point is most necessary to be known, viz., how the pressure of the distress has acted in driving families into limited space.

It is impossible to remove by even the most extensive charity the evil which still hangs over Lancashire; but there, as well as in the parts of London which we have felt it a duty to describe, soup-kitchens and other similar helps might be again established, which would be exceedingly useful in their way; and now is the time to assist in re-opening them.

CHURCH-BUILDING NEWS.

Wherstead (*Suffolk*).—The church here has been re-opened. The porch is of open framework, in oak, the interstices of which are filled with coloured glass. The entrance from the porch into the church is by an old Norman doorway. The stained glass in the west, east, and south chancel windows first draw the attention on entering. The first of these was designed for a memorial of Sir Robert and Lady Harland; the second to Captain George Ashley Dashwood; and the third is a memorial of two of his children. The first of the three has for its subject the acts of charity, Feeding the Hungry, Clothing the Naked, and Visiting the Sick and the Prisoner (Matthew xxv. 35). The window is by Mr. Holland, and till brought here was to be seen at the South Kensington Museum. The east and south chancel windows are by Mr. Gibbs. All the remaining windows also are of stained glass, but without subjects, being in the pattern style, and giving to the west, east, and south chancel windows the desired prominency. There is not a pane of uncoloured glass in the church. The roof is throughout of open oak-work. The old chancel roof, when stripped of the accumulated whitewash of many generations, was found in good repair, and was therefore retained. The style of the new roof of the nave is taken from that of the old roof of the chancel. There is nothing elaborate about it. The walls, which are about 4 ft. in thickness, have been coated externally with dressed flintwork, and the inside has been faced with white Parian cement. The whole church is paved with Minton's encaustic tiles; the main aisle with his red and black diamonds, and the open space within the chancel with a pattern of red and black, lighted up here and there with yellow. Within the communion-rails, which are of brass, the floor is paved with Minton's richest design, the golden *fleur-de-lis* and rose, placed on a blue ground on alternate tiles, the borders being of a rich brown and gold. The font, executed by Mr. Williams, has been covered with sculptured subjects. It consists of an octagonal basin, supported by a clustered pillar. The stone pulpit was the work of M. Abeloos, of Louvaine, carver. The main subject is the Saviour, under the figure of the Good Shepherd. The panels to the right and left of the central one contain "The Rose of Sharon and the Lily of the Valley." Each of these supports a scroll, bearing in the one case the text "Feed my lambs," in the other, "Feed my sheep." The fourth panel is filled with the emblem of wrath assuaged and reconciliation, the fruitful evergreen olive. The north wall occupies what might have been about a panel and a half; the rest, being the side towards the east, is completely open. The work has been completed by the addition of a vestry, and of a heating apparatus, neither of which the church possessed previously. For the restorations Mr. Phipson was the architect, and Messrs. Ringham & Son were the builders.

Haddenham (*Bucks*).—The parish church of Haddenham has been re-opened for Divine worship. The church is one of the most interesting of the parish churches in the county, and includes a unique and beautiful Early English tower, illustrated by Parker in the "Glossary of Architecture." The effect of the interior of the edifice had been destroyed for many years by whitewash, semi-circular plastered ceilings, and other objectionable things; but the old oak sittings, with richly-carved ends, the chancel and chancel aisle, and screens of the early part of the fifteenth century, still remain to testify to the former beauty of the church. Within the last few years an attempt has been made to raise a sum of money for the purpose of restoring the principal features of the church, and the amount subscribed was found sufficient to justify a commencement of the work at the end of last year. The chancel has been re-roofed with open timber framing, a new east window has been introduced in place of the Domestic one which existed, the interior stonework has throughout been cleared of whitewash, and the seats have been re-arranged so as to provide accommodation for an increased number of persons. Such new seats as have been added correspond in design with the old oak seats of the church. The work has been carried out by two of the parishioners, Messrs. Rose & Son, under the direction of Mr. D. Brandon. It is expected that further sums will be forthcoming to carry on the work of restoration.

Aldenham (*Herts*).—The new church which has been built at Radlet, in the parish of Aldenham, has been consecrated by the Bishop of Rochester. The site was the gift of Capt. Phillimore. Messrs. Smith & Son were the architects, and Mr. Harris the builder. The church is in the style of the fourteenth century. The material is flint and Bath stone. The building consists of nave, transepts, and chancel, with a porch at the south side. At the north-east corner is a tower, and a spire of Bath stone. The church contains sittings for 240 persons. At the east end there is a stained glass memorial window.

Tunbridge Wells.—The chief stone of a new church, to be dedicated to St. Luke, has been laid at Broadwater Down, in the parish of Frant, and equi-distant from the Frant and Eridge roads. It is to be erected at a cost of 5,000*l*. or 6,000*l*., which will be defrayed by the Earl of Abergavenny. The church is intended to hold upwards of 600 persons, and the ground-plan will be in the form of a cross, having a nave and aisles with chancel, and vestry and organ-room adjoining. At the north-west corner will be a lofty tower and spire. The style of the church will be the very early French Flamboyant. It will be built in hollowed walls of stone, lined with brickwork, to prevent dampness. The tracing of the windows, however, and the ornamental part, will be in Bath stone. The roof will be of open timber, springing from carved corbels. Provision is to be made for the erection of a gallery in the church, in the event of its being found necessary. The architect is Mr. R. Roumieu, of London; and the builders are Messrs. Mansfield & Son, of London.

Bristol.—The vestry of St. James's Church determined in the autumn of last year to restore this ancient church. The great difficulty they found, remarks the local *Mirror*, was to enlarge the old church without throwing down the old Norman piers, which were, and still are, considerably out of upright, and composed of a thin outside coating of free-stone, inclosing an interior of rubble work, now little better than sand. It was felt by the architects that it would be an act of vandalism to pull down so ancient a structure, and upon their advice Mr. G. G. Scott's opinion was asked as to the advisability of building a new aisle upon the north side, and the placing of piers to support the ancient flying buttresses existing against the north wall. The whole of the drawings and designs were then made by Messrs. Popes & Bindon, and estimates obtained and the work commenced, which was certainly of no ordinary character, as nearly every one had prophesied the old church would tumble down. The north wall and arches were shored up with timber, and the new aisle built before the old north aisle was demolished. The granite shafts were placed on account of strength, and as being less obstructive to sight than freestone ones of the requisite size, and a style of early Gothic, instead of Norman, so as to afford the height requisite for so large a church. The old flying buttresses were found to be composed of portions of tombstones of the fifteenth century. The lower portion only of the old north wall was composed of Norman masonry, about 4 ft. high, built of Brandon-hill stone. The upper portion was entirely built of Pennant, and of much later date. The new aisle is 26 ft. wide, and extends the whole length of the church. An organ-chamber has been erected upon the north-east corner. The old west end has been washed with Ransom's mixture for preserving stone. The interior Norman shafts have been painted, as in a former restoration it was considered right to enclose them with stucco. The whole of the church has been repewed with stained deal, the aisles paved with Minton's tiles, and the church lighted with gaslights manufactured by Skidmore, of Coventry. Mr. Melsom was the contractor, and Mr. H. Williams sub-contractor. The cost has been about 4,000*l*. The carver was Mr. Margetson.

Sheldon.—A new church has been built in the small village of Sheldon, about three miles from Bakewell, in place of the old structure, which was said to have had the largest churchyard in England, inasmuch as the said church stood on the highway, and was unenclosed. The new edifice, which is situate on ground consecrated some years ago, near the village, is from a design by Mr. Rollinson, of Chesterfield: it resembles the style of the thirteenth century, and has cost under 500*l*. Although of small dimensions, it will be found large enough for the population. The church is rectangular in plan, with a circular apex at the east end, south porch, and vestry: the west end is surmounted by a gabled bell turret: the windows are Early Pointed; and the roof of coupling spars of high pitch, the whole of which, and the benches, are stained and varnished. Mr. Gyte, of Ashford, was the builder.

East Lydford (*Somerset*).—The chief stone of a memorial church has been laid here. The site is in a field, opposite the vicarage. The edifice will consist of a nave and chancel. A tower, the altitude of which will be nearly 100 ft., will be on the north side of the chancel, and there will be a south porch. The style will be Early English, the materials Keinton stone, dressed with Doulting stone, the whole of the interior to be faced with the latter. The length of the nave will be 45 ft. 6 in., width 18 ft.; of the chancel, 26 ft. 9 in. by 13 ft. It will seat about 100. The cost will be nearly 2,000*l*., the whole of which will be borne by the rector. Mr. B. Ferrey, of London, is the architect; Mr. Davis, of Langport, the contractor for the whole of the works.

Upper Blackley (*Lancashire*).—The tender for St. Andrew's Church, by Messrs. Butterworth, of 1,740*l*., being the lowest of six sent in, has been accepted. Mr. J. Medland Taylor is the architect.

Radcliffe (*Lancashire*).—The new church of St. Thomas, at Radcliffe, has been consecrated. The building is calculated to accommodate 1,200 people, of whom 512 will have free sittings. The building is from the designs of Mr. W. Walker, of Manchester, and it has been carried out under his superintendence. The contractor for the stone and brick work was Mr. A. Pilling, of Bolton, the rest of the works being carried out by Messrs. Allen, Howarth, & Co., of Radcliffe. The heating apparatus was supplied by Messrs. Bland, of Bury; and the altar railing was executed by Mr. Dovey, of Manchester. The sum of 1,500*l*. is required to complete the tower. Up to the present time the building has cost 7,274*l*.

Pimhole (*Bury, Lancashire*).—Mr. Openshaw, of Primrose-hill, Pimhole, lately expressed his intention of building a church here solely at his own cost. The edifice is to meet the requirements of the people. The site, which is the gift of the Earl of Derby, contains over 8,000 square yards, and is bounded on the northerly side by Rochdale-road, and on the westerly side by Pimhole-lane. The church will be erected on the north-westerly side, land being reserved on the east for a parsonage-house, and on the south for schools, &c. The architect is Mr. Lawrence Booth (of the firm of Messrs. Blackwell, Son, & Booth), under whose immediate superintendence the church is being built; and the contractor for the foundations, which are now being constructed, is Mr. John Hall, of Lowes. The church is rectangular on plan, having a tower and spire 120 ft. in height, a nave and side aisles, a chancel containing stalls for the choir, and the sacrarium, an organ chapel and vestry. The total length internally, from west end to east end, will be 108 ft. 6 in., and the total width 58 ft. The width of the nave, from centre to centre of the aisle columns, will be 29 ft. 9 in., and the width of the aisles 14 ft. 1½ in. The organ chapel and the corresponding chapel on the south side will be divided from the aisles by means of a screen of open woodwork with metal-work introduced therein. The nave and aisles will be fitted up with benches, as also the chapel on the south side, mentioned above, affording accommodation for about 650 persons. The church will be in the Early English style. The materials will be, for the facing of the main body of the outside walls, parpoints of the Horncliffe stone; the dressings round the windows, quoins, sills, and strings, being of the Fletcher Bank or Birtle stone. Internally, the architect purposes to use a few self-coloured materials, such as wall tiling above the wainscoting, red Mansfield stone in the shafts of the nave columns, and also in the small columns supporting the roof principals. The roof will be open timber, stained and varnished, and plastered between the spars, except in the chancel, which will have a curved and panelled ceiling. The height of the nave internally will be about 48 ft. The whole of the woodwork, with one or two exceptions where oak will be used, will be of red deal, stained and varnished. The coupled shafts in the chancel will be of Cornish serpentine, and the floor of the sacrarium, chancel, and steps leading thereto will be laid with Minton's encaustic tiles, as also the porch, space round the font, and tower.

Fakenham.—The parish church has been restored. The work has been carried out under the direction and from the designs of Messrs. Atkinson, of York, architects, who gave their

services gratuitously, and Mr. Bennet, of Lynn, executed the woodwork. The church is a large structure, consisting of a nave, with aisles and clerestory, and a chancel. It is built mainly in the Late Decorated style, except the south porch and the embattled tower, which are Perpendicular. The edifice stood much in need of restoration, and it was resolved last year to re-seat it, and to put it into thorough repair. The galleries which blocked up three sides of the church have been removed; the west window restored and opened out; the pews replaced by open seats; the nave and side aisle re-roofed; all the windows repaired and fitted with cathedral glass; a new vestry built, and an oak pulpit, reading-desk, and lectern erected in front of the chancel arch. The rector has likewise restored the chancel at his own cost, and furnished it with new oak stalls and altar rails. The floor has been paved with ornamental tiles, and various other improvements effected. The alterations (exclusive of those in the chancel), have been executed at a cost of about 2,700*l*.

DISSENTING CHURCH-BUILDING NEWS.

Maidstone.—The foundation-stone of a Congregational church has been laid here. The building will be erected on the site of the old church, by Mr. Anscomb, of Maidstone, from the designs of Messrs. Habershon & Pite, of London, and will accommodate 800 persons. The style is Italian, and the front, being the only part of the exterior susceptible of ornament, will be built in Bath stone and white brick. School and class-rooms occupy the whole of the basement. The cost will be about 3,000*l*.

Blozwich.—The chief stone of a new Wesleyan chapel has been laid here. The site is a piece of land abutting upon the High-street, near to the Green. Messrs. S. & J. Loxton, of Wednesbury, are the architects; and Messrs. Butler & March, of West Bromwich, the builders. The contract sum is 1,400*l*. The building will be in the Early English style, modified to suit the nature of the materials which will be principally used. The internal dimensions of the building, in the clear of the walls, will be 57 ft. by 42½ ft., and about 50 ft. in height; but in addition to this an orchestra, measuring 12 ft. by 16 ft., is designed. Seats will be provided for about 600 persons.

Nottingham.—The new Wesleyan chapel and school-rooms, in Arkwright-street, have been opened. The style is Perpendicular, but the architect has introduced some modifications in the interior for the purpose of giving the preacher an uninterrupted view of his congregation. The roof is steep, without any division into nave and aisles, and without a clerestory. The ground plan is a parallelogram, about 64 ft. long by 30 ft. or 40 ft. wide. A gallery runs round three sides, and on the fourth there is a recessed chamber for organ and choir. The roof is timber, of a partly open character. Two large school-rooms are connected with the edifice, and there are also the usual vestries and other necessary accommodations. Mr. Ellis was the builder; and Mr. Lomas the architect. The cost will be 2,200*l*., and the sittings will accommodate 750 persons.

Knaresbro'.—The foundation stone of the new Congregational Church at Knaresbro' has been laid. The old chapel was totally unsuited for modern use, and was more like a barn than a building set apart for Divine worship. Some months ago it was determined to build a new church upon the site of the old chapel. Plans were advertised for, and of those sent in Messrs. Pritchett & Son's, of Darlington, were deemed the best. A slender tower and spire will rise to the height of 90 ft. at the angle formed by the junction of Gracechurch-street and Windsor-lane. The front entrance is a double doorway, with a four-light window above, 18 ft. high, with geometrical tracery. The plan of the church itself is a nave, with small transepts, the whole being built in the Decorated style. Including the vestibule, the extreme length of the church is 59 ft.; the width of the transept, 49 ft.; and the height, 45 ft. The nave is 38 ft. wide; and the transepts, are 35 ft. high. The windows in the side elevations, one of which is set in gable, have all transoms. The transept windows are of three lights. In the interior of the church the pews will be open, low, with leaning backs. There will be a gallery at both ends, and the church at present is calculated to hold 420 persons. The whole expense of the erection of the edifice, including warming, ventilating, and the architect's commission, will be about 2,000*l*.

Newcastle-upon-Tyne.—The foundation-stone of a new Wesleyan Chapel has been laid by Mrs. E. M. Bainbridge, in Clarence-street, Shieldfield, Newcastle. The chapel adjoins the schools which were opened some time ago, and is in the Decorated style freely treated. It will have a nave and two side aisles; metal pillars dividing the aisles from the nave and supporting the roof of the gallery. The interior of the chapel will consist of seven bays, each 10 feet wide. The staircases of the gallery will be entered from the outside, and will be surmounted with pyramidal roofs. A covered arch will connect the schools with the chapel. The orchestra is at the north end of the building, and at the other end there will be a large gallery for the children. Underneath the orchestra will be placed the minister's vestry; and beneath the children's gallery will be the entrance-lobby. The roof will be opened and boarded to the structural timbers. The length will be in all about 85 ft.; the interior length, 80 ft.; width, 45½ ft.; and height up to the under-side of the boards in centre of roof, 42 ft. The woodwork of the interior will be stained and varnished. Messrs. Redshaw & Smith, of Gateshead, are the contractors for the work. The building will hold about 800 persons. Mr. F. R. N. Haswell, of North Shields, is the architect, and the estimated cost of the building will be about 3,000*l*. A scheme is on foot for the erection of another chapel; the two to be erected at a cost of 6,000*l*.

Sacriston (*near Newcastle-upon-Tyne*).—The foundation-stone of a Wesleyan chapel has been laid at Sacriston, a colliery village about ten miles south of Newcastle. The site, in the most prominent part of the village, together with such materials as are produced on the estate, have been presented to the undertaking by the owners; and one of them, Mr. Wm. Hunter, sheriff of Newcastle, laid the foundation-stone. The chapel will be in the Gothic style, with red brick and stone dressings, and will accommodate about 300 persons. The length internally is about 50 feet, and the breadth 27 feet. Under the west end, and aided by the natural slope of the ground, is a school-room and class-room, capable of holding 120 children. This communicates by a staircase with the entrance porch on the south side of the chapel. The seats will be open, and those at the west end rise gradually. The roof is half an octagon in outline, and will be boarded on the under side. The whole of the woodwork will be stained and varnished. The plot of ground is to be enclosed by brick walls, except at the east end next the road, which will have a metal palisading, with entrance gates. Mr. F. R. N. Haswell, of North Shields, is the architect, and the whole of the works have been let to Mr. J. Gibson, of Durham.

SCHOOL-BUILDING NEWS.

Wednesbury.—The foundation stone of a new infant school at the rear of the Wesley Chapel, has been laid by Mr. Benjamin Bloomer, of Pelsall. The new room will be 60 ft. long by 35 ft. in width, and will be supported on brick arches, and erected at a cost of 600*l*.

Wincle (*Cheshire*).—Tenders have been accepted for the erection of a new school building, with master's house, at Wincle, at a cost of about 700*l*. The late Mr. Thomas Ryle Daintry, of North Rode, gave the land for the purpose, and, besides an endowment, by his will left a sum of money in aid of the contemplated new buildings. Mrs. Daintry, desirous to see her husband's intentions carried out, resolved on commencing the buildings at once, the parishioners being invited to contribute towards the object, Mrs. Daintry undertaking to make good all deficiency in the funds. Mr. Sugden, of Leek, is the architect employed by Mrs. Daintry.

Salford.—The foundation stone of a new Wesleyan Sunday School has been laid by Mr. W. Holland, in Regent-road, Salford. It is proposed, in the first instance, to erect a Sunday School capable of accommodating 600 children, with a large room over it for public worship; and it is also intended, as soon as the necessary funds can be raised, to erect a chapel in connexion with it, the land for which has been purchased, and the plans prepared. When the design is completed, the frontage of the chapel will be to Regent-road, the schools being in the rear, with entrances from Dixon-street and Taylor-street. Altogether between 5,000*l*. and 6,000*l*. will be required to carry out the intentions of the building committee. At present, only about 1,000*l*. have been subscribed. The school building, when completed, will afford the necessary temporary accommodation for public worship. It will be a Gothic structure of brick, with stock brick facings, relieved with black Staffordshire bricks in string courses and arches. It will be two stories in height. On the ground-floor there will be an infant school, with four class-rooms, and other offices. The upper floor will form one large room, which will be used as a general Sunday School, and, for the present, also as a preaching-room. The schools are intended to accommodate 600 Sunday scholars, including 150 infants. The architect is Mr. G. Woodhouse, of Bolton; and Messrs. J. Statham & Sons, of Pendleton, are the contractors. The total cost of the school building alone, including 100*l*. for the fittings, and 500*l*. for the land, will be about 2,000*l*.

Golden Cup (*near Blackburn*).—The foundation stone of a new Church of England school, at Golden Cup, on the highway from Blackburn to Over Darwen, has been laid by Mr. R. H. Hutchinson. The school will be 90 ft. long by 30 ft. wide, and when complete will have a schoolmaster's house and class-rooms attached. The site, which contains about 1,300 square yards of land, has been given by the Rev. Joseph Hindle; and the Rev. Philip Graham, of Turncroft, has subscribed the wall stone.

Pendleton.—The foundation-stone of a new school in connexion with the Independent chapel has been laid. The new school, which will be erected from the design of Messrs. Frazer & Son, of Manchester, will contain twenty class-rooms, with infants' elementary class and lecture rooms. The style of the building will be Geometric. The entire cost of the building, including gas and hot-water apparatus, will be about 2,000*l*.

Buersill, Rochdale.—National schools are to be erected here for Messrs. Radcliffe. The tender of Messrs. Barnes & Howe, of Manchester, 2,324*l*., being the lowest of seven sent in, has been accepted. Mr. J. M. Taylor, of Manchester, is the architect.

Bradford-cum-Beswick (*Lancashire*).—The tender of Messrs. Thackrah & Peirce, of Stockport, for parish schools, has been accepted, being the lowest sent in. Mr. J. M. Taylor is the architect.

Lister Hills.—The church and congregation assembling in the Independent chapel, Lister Hills, according to the *Bradford Observer*, have recently enlarged and extended their school buildings, at an estimated expense of 1,200*l*. The new schools are in the Early English style of architecture, in conformity with the rest of the block. Messrs. Lockwood & Mawson were the architects, and Messrs. James Wilson & Sons, the contractors.

Reepham (*Lincolnshire*).—A public school-room having long been much needed in the village of Sall, the Rev. Sir E. R. Jodrell, bart., of Sall Park, has now erected, almost in the centre of the village, near the church, at his own expense, amounting to nearly 600*l*., a large building, consisting of a school-room, measuring 40 ft. by 20 ft., and a residence for the teacher, in the Domestic Gothic style, with bell-turret. The exterior of the roof is covered with blue and black tiles, whilst the interior is of open woodwork, with blue interstices. The architect was Mr. William Lightly, of London; and the builders were Messrs. Nelson & Sons, of Whissonsett. It is also the intention of Sir Edward to build several model cottages near the school, similar to those built by him last year at Saxlingham, near Holt.

Jarrow (*County Durham*).—A school has been built, and formally opened, adjoining the extensive chemical works of Messrs. S. Mease & Co., at their sole expense, for the benefit of their own workpeople in the first instance, and of the residents in the locality. It will accommodate 150 children. The buildings are in the Decorated style. The school-room is 55 ft. by 26 ft., with an open boarded roof of polygonal form, 22 ft. from floor in the centre; class-room 20 ft. by 15 ft.; with entrance porch on east side, and play-ground at the south end. Mr. F. R. N. Haswell, of North Shields, is the architect.

Morpeth.—The Bolland Industrial Schools, Morpeth, have just received additions that have doubled their size, and consequently considerably augmented the accommodation which the improvements in the school, and increase in the number of scholars, under the auspices of the rector, the Hon. and Rev. F. R. Grey, rendered desirable. The former school serves as the basement for a large, light, airy, open-timber-roofed room, which has been built over it, and projected over an additional area by

means of arches thrown over a fore-court that extended along the front of the former house. This arrangement was adopted by the architect, Mr. F. R. Wilson, to avoid encroaching upon the playground for extra space. The elevation next the street consists of an arcaded cloister of five arches, surmounted by the new school-room, which is lighted by five lancet triplets and five rose ventilating windows in as many gables, each triplet being directly over one of the arches, and under one of the gables. The new school-room is 50 ft. long by 26 ft. The materials are white and red bricks, arranged in bands. The contractors were—H. Hudspeth, mason, and Thos. Forster, joiner, Alnwick; Thos. Cranston, plumber, and John Cranston, slater, Morpeth.

THE THEATRE.

The Haymarket.—In the part of *Mrs. Haller*, in Kotzebue's lugubrious but still effective "Stranger," Mdlle. Beatrice has made her value more evident than before. This lady is a decided gain to the English stage, and we look to see her talents made good use of.

The Olympic.—This theatre, opened under the management of Mr. Horace Wigan, has been improved before the curtain, and decorated with great taste and delicacy, by Mr. Leonard Collmann, with Pompeian proclivity. The proscenium, which is new, is particularly elegant, and includes some figures in bas-relief. The gas, in the ceiling, is boxed in with a glass cup, so to speak, and diffuses a very agreeable and innocuous light, Messrs. Hulett & Co. being the operators. Increased space has been gained for the stalls, and the gallery, we believe, has been enlarged. The new drop-scene, by Mr. Craven, is a sparkling Greek landscape with architectural remains, and might easily be improved by a little more work: parts are crude, and the framework of frets and accordant accompaniments is very carelessly drawn, and should be revised. An act-drop, coming often before the eyes, and remaining so some time without the occurrence of acting to withdraw attention, requires more careful painting than an ordinary scene. Of the scenery for the new drama, "The Hidden Hand," we are glad to speak in warm terms. It consists of four very complete and effective architectural "sets," a vaulted chamber, a drawing-room, a bed-chamber with wall panellings and deeply recessed window, and the court-yard with loggia. The drama itself, adapted from the French, is very ingeniously constructed, highly exciting, and affords scope for some admirable acting, especially on the part of Miss Kate Terry, Mr. Henry Neville, and Miss Lydia Foot;—acting which, conjoined with the interest of the piece itself, will, we have no doubt, carry it through a long run. The new manager has certainly made a good beginning.

The New Birkenhead Theatre.—The New Theatre Royal at Birkenhead was opened last Monday night. It has been erected by a company and has cost about 9,000*l*. It is the first building of the kind having any pretensions to be a first-class place of entertainment provided for the large population of the Cheshire bank of the Mersey. The building has roomy accommodation for 1,600 persons, and is comfortably and elegantly furnished. The scenery, including the act-drop, is painted by Mr. Dalby.

Tusa, Sicily.—At the commencement of the performances at the theatre at Tusa, in Sicily, last month, two rows of the boxes fell with a great crash. After the rubbish had been cleared away by the soldiers who were called in to assist, two persons were found to be dead, and several severely wounded. We mention the circumstance as a reminder, for care.

RECENT PATENTS CONNECTED WITH BUILDING.*

Heating Buildings by means of Hot Water. *G. H. Pierce.* Dated 29th May, 1863.—This invention consists in a furnace with a suitable flue, and a boiler with flow and return pipes, the furnace being provided with a self-acting feeder, which, by means of clockwork supplies the requisite amount of coal or fuel to the fire at any fixed time of the day or night. The boiler is of conical shape, with the feeding door placed in the usual position. The flue, instead of being at the side or back, is at the top, taking any turns required by the form of the building to which it is applied. The flow-pipe is, in proportion to the flue, as large again, and contains the flue to the length of the building. The object of the flue passing through the flow-pipe is, that all heat generated within the boiler will be turned to account in the course of the draught, coming in contact with a large portion of metal surrounded by water. A damper is placed just above the end of the flow-pipe, so that when the fuel is well lit up, the heat may be regulated. The feeder is a box or spout, of a semicircular shape, about 1 foot in length, with an opening in the flat side, about 1 inch from the front of the boiler, into which fits a sliding door, with a trap to fill over the orifice when the slide is withdrawn. Into this box the requisite quantity of coal or fuel is placed, and the feeder is then closed by a door. At any time of the day or night to which the clockwork may be set, a cord connected to the clockwork acts on a catch, which action will release the end of a lever, to which a weight is attached, which in its descent lifts the sliding-door in the feeder, and allows the coal in the feeder to slip into the furnace or cavity of the boiler.

Bricks.—*G. H. Cottam.* Dated 2nd June, 1863.—In making bricks for paving stables and other places, the patentee forms the bricks of an oblong shape, as heretofore, but, in place of making the bricks deeper than they are wide, he forms them square in transverse section, so that, in laying them, either side may be placed uppermost. They can also be made in cube blocks, to use all sides alike, when required for paving stable-yards, or at the backs of stalls; all the edges of the bricks are also bevelled, so that, whichever side of the bricks is placed uppermost, there will always be a hollow space between the upper surfaces of two neighbouring bricks. They can also be made without the bevelled edges, so as to form a plain surface.

Construction of Fan Blowers for Ventilating and other Purposes.—*W. E. Newton.* A communication. Dated 20th November, 1863.—This invention consists in gathering and expelling from an apartment of any kind the foul air or gases, and at the same time, and by the same apparatus, drawing in fresh air from without, and forcing it into the apartment to supply the place of that expelled, thus doing two things at the same time, or by one and the same operation, both of which are essential to a speedy change of air in the apartment to be ventilated.

Machinery for Making Bricks and other like Articles.—*W. Williams.* Dated 21st November, 1863.—The patentee constructs a trough or framework of cast-iron or other rigid material, preferably of a circular form, with openings in the bottom corresponding in shape to the bricks or articles to be made. Between and above these openings there are transverse pieces, which join the sides together, so that the trough or framework, when ready for use, resembles, and may be said to consist of, a series of small hoppers. A roller, similar to an edge-runner, to which he affixes projecting pieces, to fit into the hopper-shaped spaces, is made to travel over and in the said trough or framework, and press the clay or other plastic material, supplied to the trough or frame by hand or otherwise, through the openings in the bottom, into moulds placed just under such opening. The roller can be made to travel by any suitable means: a horse could be yoked to the lever or arm coupled to the roller in the usual way, the other end of such lever or arm being connected to an upright shaft resting in a step placed in the middle of the circle described by the trough or framework.

Constructing the Floors of Bridges, Houses, &c.—*E. Finch.* Dated 21st November, 1863.—For the purposes of this invention, in forming a floor, girders or beams, by preference of wrought iron, and constructed as heretofore, are used, but other construction of girders, whether of iron or other materials, may be employed. On these girders or beams bars of T-iron are fixed parallel to each other by riveting or otherwise; or bars of bridge or trough iron, or of angle iron, or bars of other forms may be similarly used in place of bars of T-iron, so long as they are suitable for having the edges of sheet-iron or steel fixed thereto. When using T-iron, the sheets or plates are cut somewhat wider than the spaces they have to fill, and they are slightly curved or bent, and spring into the spaces between the bars of the T-iron, and are there fixed by keys passed through holes formed at intervals in the limb or leg of the T-iron, the head of the T-iron bars being fixed to the beams or girders by riveting or otherwise. This insulating surface is covered with concrete, asphalte, or other suitable material, and over that stone or other flooring is applied. When using bars of other forms, the edges of the bent plates or sheets are fixed to the angle or sides of such bars by riveting: in other respects the construction of a floor is as before described.

* Selected from the *Engineer's* lists.

Books Received.

VARIORUM.

"The Simplicity of the Creation." By William Adolph. Second and enlarged edition. London: Burns & Lambert, Paternoster-row. 1864. The orthodox science of astronomy is undergoing so many modifications, from within as well as from without, in these more and more heterodox and self-asserting times, that soon it will be difficult to draw the line between its pure orthodoxy and its mere heterodoxy, and we shall have to take refuge in the Scottish blacksmith's sarcastic and long-headed definition of the distinction between the two: "When your doxy and my doxy 'grees,—that's orthodoxy; but when your doxy and my doxy differs,—weel—that's heterodoxy." Mr. Adolph's very ingenious and original disquisition certainly differs not a little from other doxies,—both ortho- and hetero-doxies,—both from the Hinds and from the Gumpachs of astronomical science; but, as we have before said, we hail with pleasure every new blow at the old idol whose worship has become a superstition; and it is not necessary that we should quite agree with every new-comer, in order that we may enjoy each successive blow. We are only pleased to think that good and truth cannot but come out of the *mêlée* at last. In regard to Mr. Adolph's speculations, which, as he informs his readers in the preface, first of all originated in a theory of the tides to which we gave a place in the *Builder*, it is to be regretted, we think, that he did not take the advice kindly given him, not to mix up doctrinal points connected with one special form of religion with his scientific speculations. Even the more scientific and enlightened members of his own church, we feel assured, would have preferred his not doing so, however conscientious and excusable his motives. As it is, however, this suggestive volume will be found to contain much food for wholesome rumination on very sublime and interesting subjects.——"Introduction to the Science of Wealth," by W. H. Daniels (Hardwicke), is the title of a *brochure* on political economy, that discusses questions of rent, supply and demand, and profit, in a way to incite thought.——A little volume of fun, reminding the reader of the well-known "Comic Annual," will shortly be published under the title of "Vere Vereker's Vengeance: a Sensation." The illustrations, we believe, will be quite as *à propos* to the text as those to be met with in some other recent works. They cannot well be less so. The author is Mr. Thomas Hood.

Miscellanea.

The Higham Ferrers Brasses.—Who is it that has been moving the brasses in Higham Church? Why could they not be let alone?

Monumental.—The monument to Melancthon was to be inaugurated at Bretton, in the Grand Duchy of Baden, on the 30th of October. This monument has been prepared in Berlin by the well-known sculptor Professor Drake.

Iron Defences for Russia.—Not long ago we were very anxious to knock about the forts of Cronstadt. Now English iron-workers are supplying the Russian Government with enormous iron defences for the said forts. Accommodating John Bull!

Sanitary State of Croydon.—According to the quarterly report 170 deaths were registered in the parish in the quarter ending 30th September last,—being at the rate of 19¼ (per annum) in the thousand of the population, now estimated at 35,332. This is very slightly above the average of the last ten years, without allowing for any increase of population since the commencement of the year. In the less populous districts the mortality has been very low; and only at a comparatively high standard in the central district, including the union house.

Architectural Association Voluntary Examination Class.—The meetings of this class have recommenced. On Tuesday next, the 8th instant, Mr. Thos. Blashill, the president, will give a paper on "Iron and Ironwork." A syllabus of the papers up to January next will be found in the annual publication of the Society.

Ancient Bristol: Discovery of Old Paintings.—Bristol is rich in old and curious houses. The office of the *Mirror*, in Small-street, is celebrated as the house of Colston the philanthropist, and has many curious carvings, ancient chimney-pieces, and open roofs. It appears that portraits of Drs. Paul Bush, Newton, and Smalridge, Bishops of Bristol, were presented to the late Bishop Monk by Archdeacon Thorp, but that they have been missing ever since Bishop Monk's death. They have now been discovered, however, by Bishop Ellicott, under some old packing-cases in a cellar.

The Main Drainage and Thames Embankment Contract.—At a meeting of the Vestry of St. James's, Westminster, Mr. Beal moved a resolution to the effect that it is essential, having reference to the grave charges made against the management, by the Metropolitan Board of Works, of the Main Drainage and Thames Embankment works entrusted to it, that a full inquiry under the Government should be made through the medium of a Royal commission. After some discussion the meeting was adjourned for further consideration of the subject.

Gas-Meter Company (Limited). — At the second annual meeting of this company a dividend was declared at the rate of 6 per cent. per annum for the last half-year, and for the same period a bonus at the rate of 6 per cent. per annum, leaving a balance of profit undivided of 768*l*. The company have completed arrangements for the more accurate formation of dry gas-meters by machinery, for which they have a patent. The report states that 13,000 of their "unvarying water-line gas-meters" (Sanders & Donnovan's patent) are at present in use. The consulting engineer of the company, Mr. T. G. Barlow, has reported to the directors on the dry-meter machinery. Mr. A. A. Croll, one of the directors, has retired by rotation, but has been re-elected.

Progress at San Francisco.—As an evidence of progress at San Francisco, we may mention that the "Cosmopolitan Hotel," a building on a large scale, has been opened. It stands at the corner of Sansome and Bush streets, and occupies the site of the old Rassette House, afterwards known as the Metropolitan Hotel, covers a full 50-vara lot, and has therefore a frontage of 137½ ft. on both Bush and Sansome streets, and is the same number of feet either way in depth. The building has a full basement, four full stories above, and an attic with rooms as spacious as those in an ordinary first-class dwelling. The clear space between the floors and ceilings of the rooms on the different floors are as follows:—Basement, 9 ft.; first, or main story, 17 ft.; second story, 14½ ft.; third story, 12½ ft.; fourth story, 11 ft.; attic, 10 ft. The building is in the modern French style. The cost of erection was 250,000 dollars.

The Utilization of Sewage at Carlisle.—"Every one in Carlisle," says the local *Journal*, in allusion to the visit *en masse* of the Metropolitan Board, "will admit that Mr. M'Dougall's sewage experiments, here as elsewhere, have proved a decided success. When did the holmes he rents ever bear, before he leased them, anything like such crops as they have borne since? And who, when the sun shone brightest on Carlisle wall, was annoyed by the slightest whiff of malodour from Mr. M'Dougall's meadows? The old-fashioned prophets of evil, who have croaked over liquid manure like a chorus of frogs, have had all their predictions falsified. The visitors from London could not have come to a better place than Carlisle to convince them, or to confirm their conviction, that town sewage can be used for agricultural purposes with great pecuniary profit, and without any sanitary detriment;—that it is a most powerful fertilizer, and can be thoroughly deodorized and disinfected. We heartily rejoice over the success of the local experiment, not merely for local reasons, but because we hope and believe that it will be instrumental in bringing about a sewage reform of almost incalculable national importance." The Metropolitan Board have since been at Carlisle, as already noticed, and afterwards went on to Edinburgh and Glasgow.

Fever at Woodditton, Newmarket.—There are several bad cases of fever and scarlatina raging in this village; caused, it is supposed, through the use, for domestic purposes, of shockingly impure water, and a want of sufficient accommodation and ventilation in the cottages. The Duke of Rutland has given directions for the immediate removal of some families into new and commodious cottages recently finished, and has ordered that those in which they are now living shall be at once pulled down. The duke has intimated his intention to erect other comfortable cottages, and to have wells sunk in various parts of this extensive parish.

Communication between Passengers and Guards in Trains.—Another of the innumerable suggestions for this purpose has been provisionally protected under the title of "New or Improved Arrangement or Mechanism for Communicating between any Passenger and the Guard and Engine-driver of a Railway Train." It consists simply of a pair of arms or shutters, fitted with springs, and affixed to the outside of each compartment of a railway carriage, which arms are held in their positions by a rod passing over the seat. This rod is made sufficiently strong to prevent any person injuring the signal, which, when required in case of accident or otherwise, needs only to be moved in either direction from within the carriage, when the arm or shutter is immediately disengaged, and stands out at right angles to the side of the carriage, so that it can readily be seen by the driver in front, or by the guard at the rear of the train. The carriage-lamp will in this case be situate at the side, and a glazed opening will be made to allow the light to be reflected on both sides of the shutter or arm when disengaged, thus showing the signal at night as readily as in the daytime. The plan is simple enough, but it is not from want of simple enough arrangements that communication between passengers and guards has not yet been made on railways.

New Park for Preston.—At a recent meeting of the Preston town council, Mr. Alderman Miller intimated his intention of presenting to the town a plot of ground for a public park. Already Preston has one park, in Avenham Valley, which has just been laid out by Mr. Milner, the landscape gardener. The ground given by Mr. Miller adjoins that in Avenham Valley, and will be connected with the park recently formed by roads, &c. Mr. Miller has given between 2,000*l*. and 3,000*l*. for the land. The gift is made subject to this condition—viz., that the corporation shall make a yearly grant of 40*l*. for the benefit of the Preston Grammar School. The money will be appropriated in the foundation of a scholastic exhibition. Immediately after Mr. Alderman Miller had made the presentation, and had received the thanks and eulogy of the council, the town clerk announced that legal proceedings were to be taken against Mr. Miller because his mill furnaces did not consume their own smoke. This announcement naturally created rather an odd sensation of surprise among the members of the council.

The Tomb of an Ancient Briton.—A barrow has been opened near to Seale House, Rylstone. The tumulus was 31 ft. in diameter and about 7 ft. high, and situate in a meadow. It was opened from the south-east, and immediately under the sod was found to consist of yellow clay to a considerable depth; then came layers of blue clay, which had evidently been puddled, or worked to a finer consistency, doubtless to keep out the water. Exactly in the centre of the tumulus, at a depth of 7 ft., and on a level with the plane of the field, was found an oak coffin formed out of a tree which had been split and hollowed out, and placed due north and south, the head being placed to the south, as that was the larger part of the tree. After being exposed to the air for about ten minutes it parted at the sides, and it was found impossible to move it except by detached pieces. The body had been wrapped in a cloth or shroud of a texture resembling wool coarsely woven, of which there was a considerable quantity remaining, but the body itself was dissolved by the action of water. The Rev. Mr. Greenwell, the antiquary, considered the interment to have been that of an ancient Briton, decidedly pre-Roman, and doubtless 2,000 years old. He said it was the only instance (with one exception, found at Gristhorp, near Scarborough) where an interment in an oak tree hollowed out had a tumulus placed over it. The coffin was more than 6 ft. in length inside, and about 7 ft. 6 in. outside.

Employment of the Lancashire Cotton Spinners.—A notice has been issued from the Public Works Office, calling upon the local authorities in the distressed cotton districts to proceed with the public works in such a way as to give employment to the largest number of indigent factory operatives, and to withhold, for the present, if needful, such works as are most productive of wages.

Industrial Ragged School for Birkenhead.—Mr. William Jackson, M.P., has undertaken to build, at Birkenhead, an Industrial Ragged School. An application for a site in the Commercial-road, Birkenhead, was made to the Liverpool town council, and the council have resolved to grant the reversionary interest for 160*l*., subject to the approval of the Lords of the Treasury, for so long as it may be used for the purposes for which it is granted.

Operative Coachmakers' Industrial Exhibition.—A large meeting of employers and operatives of the above trade was last week held at the Northern School-rooms, Castle-street, Long-acre. Mr. G. N. Hooper was appointed chairman, and stated the objects to be attained. The meeting determined on adopting the scheme after the plan of the Painter Stainers' Company; medals and certificates to be presented to the most skilled artisans in their various branches. A memorial, numerously signed by both employers and artisans was then determined on for presentation to the Worshipful Company of Coach and Coach Harness Makers of the City of London for the use of their hall.

Public Works in Ashton and Stalybridge.—The corporate seals of these two boroughs have been just affixed, at a special meeting of the council of each borough, to mortgages to the secretary of the Public Works Loan Commissioners, each for the sum of 20,000*l*., and for further advances to Ashton of not exceeding 57,500*l*., and to Stalybridge of not exceeding 62,500*l*. A great deal of this money is to be employed in carrying out the Ashton-under-Lyne and Stalybridge (Corporations) Waterworks Act, 1864. A number of cotton operatives were set to work on Monday morning in making roads and so forth at Swineshaw Brook, the site of the intended waterworks, and the number is to be gradually increased, the men being drafted from Ashton and Stalybridge, so that each borough may participate equally in the benefit of employing the factory operatives now out of work.

Rouen Art-Union.—In the year 1834 a society was formed, with the title of "*La Société des Amis des Arts*," "to aid the progress of art in Rouen, and to encourage artists by the purchase of works from the exhibitions organized by the municipal administration." The condition of membership is the payment of 30 francs on the occasion of each exhibition, and subscribers pay 10 francs each, the pictures purchased being distributed by lottery amongst both classes, every 10 francs carrying the right to a chance. For some years the exhibitions were annual, but at present they take place every second year, and, since the establishment of the society, it has purchased and distributed nearly a thousand pictures, at a cost of upwards of 180,000 francs. The exhibitions are held in the Hôtel de Ville, and the municipality votes a sum of money to cover the expenses, and another in aid of the funds of the society, or for the purchase of works of art for its own public gallery. The number of works of art in the Exhibition now open is 819, and many of those are by well-known artists.

Strikes. — The Birmingham Association of Brick Masters state that the men belonging to the Operative Brick-makers' Society of Birmingham are out on strike, "having left their employment because the masters would not turn off old hands to put on such men as the club might send them."——The nail-makers of the Lye, Cradley, and neighbouring districts, are at present much dissatisfied with some recent alterations in the rate of wages paid to them. A material fall in the rate of wages has led, it is said, to a nailer's earnings being reduced so that he can only get 10*s*. where he formerly got 1*l*. Within the last month, however, the masters have taken 1*d*. off the hob-nails, as compared with the July list; and, in addition to this, one master took 10 per cent. off the "thousand" work; but, owing to remonstrances by the union, this has been stopped. Intimations are now said to have been made that another drop on the "hundred" work and on the "hobs" will take place. Should this occur, it will lead to a general strike.

PROPOSED METROPOLITAN TRADES HALL.—Endeavours are being made to obtain a building in the metropolis for working men's friendly, co-operative, trade, and other meetings. The purchase of St. Martin's Hall for the purpose has been suggested.

VALUE OF LAND AT WINDSOR.—Last week the site of the late royal stables at Windsor, purchased of the Crown by the Great Western Railway Company about twenty years ago, which has been lying waste ever since that period, was submitted to auction, at the Castle Hotel, by Farebrother, Clark, & Lye, first as a whole (about two acres), but 3,550*l.* being the only offer, it was withdrawn, and afterwards submitted in thirteen lots, averaging from 30 ft. to 40 ft. frontage, and about 100 ft. in depth. Only three lots were sold, the reserved price appearing to be about 10*l.* per square foot frontage.

A NOVELTY IN CHAPEL-BUILDING.—A Scotch paper records the opening of a new Baptist chapel, every stone of which has been quarried by the hands of the minister. It is on the island of Lismore, standing almost in the middle of Loch Lhinne, and the minister is Alexander Livingston, one of the agents of the Baptist Missionary Society for Scotland. He has not only given the site, but, to lessen the expense, has with his own hands quarried every stone, besides assisting as a labourer to the workmen. It is 30 ft. long and 20 ft. wide, and comfortably seated for 150 persons.

INFLUENCE OF IRON ON VEGETATION. — A curious discovery, it is said, has recently been made regarding the influence of iron on vegetables. On the chalky shores of France and England, where there is an absence of iron, vegetation has a sere and blanched appearance. This is removed, it appears, by the application of a solution of the sulphate of iron. Haricot beans watered with this substance acquired an additional weight of 60 per cent. Mulberries, peaches, pears, vines, and wheat derived advantages from the same treatment. In the cultivation of clover wonderful advantages have been gained by the application of sulphate of iron on soils where it is desired to produce an early crop. No fruit is so much benefited by iron rust in soils as the pear. So says a New York paper; but we have always understood that iron was rather a sign of barrenness in a soil; and were not aware that the juices of plants, like the blood of animals, derived benefit from iron; which, however, has been regarded as pre-eminently a vital metal, as respects animal life.

WORKMEN'S DWELLINGS, PARIS. — A correspondent of the *Morning Post*, writing on this subject, says,—"The attention of the Emperor has been directed to some of the pieces of land which have been severed by the construction of the new streets, particularly in the outskirts of the town, where land is of less value. I have just seen the Cité Ouvrière, in the new street, Rue de Campagne Première, leading out of the Rue d'Enfer. This consists of a number of very neat houses, only three stories above the ground-floor, and with two sets of apartments in each. They are inhabited by 600 people, and produce a revenue of 45,000 fr., or 1,800*l.*, a year. Each set has a sitting-room, about 12 ft. square, one bedroom only, and a small kitchen. The height of every story is 2½ metres, or nearly 9 ft. Gas and water are laid on, and there are conveniences for stowing wood, &c. Each set lets for 250 fr., or about 10*l.*, per annum. Although deficient in accommodation, to our English notions, they are a great improvement on the garret and cellar system. The rent is paid readily, and there was not one single apartment to let when I went over the place. But by far better than these are a large row of dwellings which are now in progress by a very public-spirited and enterprising individual, M. Garand, in the Rue Popincourt, Faubourg St. Antoine. They are from the designs of M. Oslin. There are four sets of apartments on each floor, consisting of three rooms and a kitchen, with every convenience. These, though much larger and more commodious than those formerly described, can be let for 300 fr., or 12*l.*, per annum. The principal room is 14 ft. by 12 ft., and 9 ft. high. On the upper or fifth floor are to be, as I understand, single rooms for bachelors, which are to be let furnished for 20 fr. a month, or 9*l.* 12s. per annum. In a country where so much is done by Government, and so little by private enterprise, it is with great pleasure I record the name of M. Garand as a great and worthy benefactor to the industrious classes of Paris.

WORKINGTON WET DOCK.—The walls of the new wet dock at Workington prove to be of insufficient height to admit of vessels loading from the hurries. The blunder, which is a somewhat serious one, is Mr. Rendell's, and the expense of the alterations which will have to be made before the dock can be used is likely to be considerable, as the sides of the dock will have to be heightened to the extent of some 6 ft.—*Whitehaven News.*

ENORMOUS CASTING, SHEFFIELD.—It may be in the recollection of our readers that in July last a successful attempt was made by Messrs. J. M. Stanley & Co., the Midland Works, to cast an anvil block weighing 160 tons. The enormous mass of iron took six weeks to cool, and it was then, by means of hydraulic power, lifted from the mould. Last week the same firm were engaged in casting a second anvil of precisely the same size and weight. The mould, which was 12 ft. square at the base and 11 ft. 6 in. deep, was dug out in the centre of the workshop, and from the five furnaces constructed at intervals round the building, the molten iron was run. The first furnace was "tapped" at six o'clock in the morning, and in about twelve hours the mould was filled.

PROPOSED RAILWAY BRIDGE OVER THE TAY.—A meeting of the principal inhabitants of Dundee has been held to consider a proposal to form a high-level bridge across the Firth of Tay. Mr. Dodds, Parliamentary solicitor, stated that the scheme was brought forward in connexion with a proposed bridge over the Forth above Queensferry. Mr. Bouch, C.E., stated that a line was intended to run along the south shore of the Firth, from Tayport to Newport (about two miles and a half), from which it would cross to Dundee on a lattice girder bridge, about two miles in length with a single line of rails. A double line would run nearly a mile through the town on arches to the general station, where the North British would join the Scottish North-Eastern. The estimate was, for the Tayport line, 70,000*l.*; the bridge, 180,000*l.*; the junction line, 100,000*l.*—in all, 350,000*l.* The Forth bridge would cost about three times that of the Tay bridge. The southern and east coast companies were to build the Forth bridge, and would also give aid to the Tay bridge, but it was hoped the people of Dundee would show their interest in the scheme by subscribing part of the capital. The bridge would be finished in about two years. It would not, being above the port and harbour of Dundee, interfere with the navigation, its elevation being about 100 ft. above the fairway at high water, the same height as the Britannia bridge, reduced at the ends by an incline on either side to 70 ft. The meeting expressed general approval of the object, and appointed a committee to consider the scheme maturely and report upon it.

COST OF PUBLIC WORKS AND HIGHWAYS AT STOCKPORT.—It appears from an official statement of the expenditure by the corporation on public works from October 21, 1863, to October 20, 1864, that the amount paid for skilled labour has been 727*l.* 13s. 1d., against 5,319*l.* 15s. 3d. for unskilled: 3,124*l.* 14s. 11½d. had been paid for carting, stonework, brickwork, lime and cement, pipes, blocks, bends, inverts, &c., and timber; and 2,617*l.* 10s. 8d., for sundries, including pump, asphalte boiler, salaries, stationery, smithwork, and the purchase of Messrs. Rostron's property;—making a total of 13,779*l.* 13s. 11½d. From this must be deducted the cost of Carrington road, 802*l.* 17s. 1d.; leaving the total actual cost of sewerage works 12,976*l.* 16s. 10½d. The expenditure on the highways during the same period is 1,166*l.* 17s. for skilled labour; 671*l.* 8s. 2d. for unskilled; carting, 819*l.* 4s. 3d.; stone, sets and flags, 920*l.* 18s. 9d.; pitch, gravel, coal, smithwork, working plant, lime, timber, and joiners' work, 614*l.* 3s. 1d.; sundries, stationery, &c., 101*l.* 11s. 1d.;—or a total of 4,062*l.* 3s. 5d.

TENDERS.

For new tavern in Union-road, New Wandsworth, for Mr. Fred. White. Quantities not supplied:—

Braithwaite	£474 0 0
Stimpson	470 0 0
Adamson	439 0 0
Lathey, Brothers (accepted)	423 0 0

For the erection of dwelling, shop, and warehouse, in Rampant Horse-street, Norwich, for Mr. T. Priest. Mr. James S. Benest, architect. Quantities supplied:—

Lacey	£1,160 0 0
Balls	1,076 0 0
Gilbert	1,060 0 0
Taylor	1,059 0 0
Wales (accepted)	1,020 0 0

For the Boys' Hospital School, for the Norwich Charity Trustees. Mr. James S. Benest, architect. Quantities supplied:—

Bocking	£613 10 0
Plummer & Bloom	482 10 0
Downing	478 5 3
Wright	469 0 0
Lacey	467 0 0
Browne & Bailey	459 0 0
Spinks	448 0 0
Youngs	447 0 0
Taylor	430 0 0
Murray & Son (accepted)	420 0 0

For new foundry, Teesdale Iron Works. Mr. Charles J. Adams, architect:—

Noble (accepted)	£1,923 11 6

For park-wall and entrance-gates near Edmondthorpe Hall. Mr. R. W. Johnson, architect:—

Halliday & Cave	£645 0 0
Clarke & Co.	609 0 0

For new farm steading, and repairs and additions to house at Horninghold, on the estate of Mr. T. Chamberlayne. Mr. R. W. Johnson, architect:—

Porter	£2,077 0 0
Mason	2,040 0 0
Clifton	2,013 0 0
Fast	1,970 0 0

For repairs to 19, Southampton-street, Bloomsbury, and warehouse in rear thereof, for Mr. J. W. Hollebone. Mr. P. W. Willis, architect:—

Deards	£5,273 0 0
Carter & Sons	5,216 0 0
Patrick	5,185 0 0
Mathews	4,728 0 0
Henshaw	4,556 0 0

For the erection of offices and stores in connexion with Woodside Ferry, Birkenhead. Mr. T. C. Thorburn, architect. Quantities by Mr. W. M. Boden:—

Campbell	£4,231 0 0
Cameron	3,998 11 5
Dobson	3,993 18 0
Lund	3,992 8 7
Ellis	3,560 0 0
Wright	3,500 0 0
Bleakley	3,470 0 0
Hogarth (accepted)	3,349 13 7

For new Board-room and offices for the Guardians of the Parish of St. Matthew, Bethnal-green. Mr. E. N. Clifton, architect. Quantities supplied by Messrs. Williams & Schofield:—

Hill & Keddell (accepted)	£5,525 0 0

For public-house at Bracknell, Berks, for Mr. Allaway. Mr. Jos. Morris, architect:—

Norris (Jas.)	£720 0 0
Grover	602 0 0
Sheppard	599 0 0
Norris	544 0 0
Winter	540 0 0
Simmonds	510 0 0
Matthews	504 13 0
Kearvell	502 0 0
Biggs	499 0 0
Kempsell	449 0 0
Hipperson & Bryard	444 0 0
Lawrence	437 16 0
Pither	428 6 0
Reavell & Sons	394 0 0
Woodwell (accepted)	370 0 0

For public-house, Grey Friars, Reading, for Mr. Allaway. Mr. Jos. Morris, architect:—

Strong	£1,136 0 0
Woodroffe	1,100 0 0
Dunn	1,091 0 0
Wheeler & Sons	1,080 0 0
Matthews	1,077 0 0
Norris	1,064 0 0
Biggs	1,015 0 0
Kendall	1,005 0 0
Grover	995 0 0
Winter	990 0 0
Sheppard	985 0 0
Simmonds	968 0 0
Reavell & Sons	938 0 0
Barnicoat (accepted)	919 0 0

TO CORRESPONDENTS.

T. M. R.—C. H. G.—Clervaux House (the foundations, we are told, are being put in. The statement that the building was in progress came from the architect; to whom any further inquiries must be addressed).—T. R. M.—B. D. (name illegible. A man who habitually signs his name so that it cannot be read is a public nuisance).—T. H.—A Fitter (we have not).—Centrifugal Railway (yes. Never heard there was any overturn).—M. E. H.—Old Architect.—Tyro.—J. A. & Sons.—S. A. L. (please send decision of case).—G. H.—A Subscriber.—A Pupil (N.B. 5 with this signature).—J. E. W.—Old Hand.—E. C. R. (next week).—B. B. (shall appear, if not superseded).—H. M. E.—J. P.—J. T.—W. H.—B. W. M.—Mr. P. for Mr. B. (plan is engraved ready).—R. S.—H. F.—R. T. S.—W. B.—J. V.—J. G.—Messrs. H.—J. B. D.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender; not necessarily for publication.

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